DOCUMENT RESUME

ED 082 537 FL 003 526

TITLE Cahiers linguistiques d'Ottawa: 2, ii, 1972 (Ottawa Notebooks on Linguistics: Vol. 2, No. 2, 1972).
INSTITUTION Ottawa Univ. (Ontario). Dept. of Linguistics and Modern Languages.
PUB DATE 72
NOTE 94p.; Some materials in French; Published with cooperation of the Centre for Second Language Learning, Univ. of Ottawa

EDRS PRICE MF-$0.65 HC-$3.29
DESCRIPTORS Computers; Error Patterns; Grammar; Linguistics; *Linguistic Theory; *Machine Translation; Memory; *Semantics; Structural Analysis; Taxonomy; Translation

ABSTRACT

This issue contains five articles dealing with several aspects of linguistic theory. The first, "Origine et evolution de la notion de 'situation' de 'l'Ecole linguistique de Londres': de Malinowski a Lyons," examines the origin and meaning of the concept of "situation" in articles by the London school of linguists. The second, "Some Aspects of a Semantic Taxonomy," discusses conditions required for structural description of linguistic content. The third defines "vigilant memory" and its application to the segmentation and error-correction of natural language input. A description of the mechanical translation system developed at the Universite de Montreal includes discussion of the theory, computer system, steps in translating, and future prospects. The last article, "Universal Quantifiers and Entailment," explores the relationship of reason and condition clauses. (RL)

FILMED FROM BEST AVAILABLE COPY

CAHIERS LINGUISTIQUES D'OTTAWA

2

ii 1972

ED 087221

Origine et évolution de la notion de "situation" de l'"Ecole linguistique de Londres": de Malinowski à Lyons - C. Germain -- p. 5 - 38.

Some Aspects of a Semantic Taxonomy - J. P. Paillet -- p. 39 - 55.

Vigilant Memory in Speech-Input Segmentation and Error-Correction - Th. R. Hofmann -- p. 57 - 67.

The Montreal MT Prototype - R. Kittredge -- p. 69 - 81.

Universal Quantifiers and Entailment - D. Lightfoot -- p. 83 - 96.

N.B. -- p. 97.

U S DEPARTMENT OF HEALTH
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

FL003 526

UNIVERSITÉ D'OTTAWA
UNIVERSITY OF OTTAWA

design ccmd/cimc

PROTOCOLE

1. Les articles soumis pour publication doivent être dactylographiés avec interligne, en deux exemplaires. On encourage les auteurs qui le peuvent à dactylographier leurs articles selon le format du présent numéro, de sorte qu'on puisse les reproduire sans les recopier.

2. Chaque article doit comporter un résumé de 25 mots qui figurera à la table des matières.

3. Les colonnes ont un maximum de 4 pouces (48 caractères) de largeur; on est prié d'en tenir compte dans l'établissement des tableaux et des figures.

4. Les notes et références sont imprimées à la fin de l'article.

5. Les articles peuvent être rédigés en français ou en anglais. On acceptera des articles rédigés en d'autres langues à condition de trouver deux membres du corps enseignant qui soient compétents à la fois dans la langue et dans la matière. Ces articles doivent comporter un résumé substantiel en français ou en anglais.

6. Faire parvenir les articles à l'adresse suivante:

   Cahiers linguistiques d'Ottawa
   Université d'Ottawa
   Ottawa K1N 6N5
   Canada

N.B. Le lecteur est prié de se rappeler la nature souvent provisoire des articles publiés dans les Cahiers linguistiques d'Ottawa. Ces articles peuvent constituer une étape d'une réflexion en marche; on ne doit pas les considérer, particulièrement en les citant, comme représentant les vues définitives de leurs auteurs.

Cahiers linguistiques

d'Ottawa

No. 2

An aperiodic journal of linguistic research published by the Department of Linguistics and Modern Languages and the Centre for Second Language Learning, at the University of Ottawa. The editorial board consists of the linguistic faculty of this University.

Cahiers linguistiques d'Ottawa

Contents

Issue 2 - ii 1972

5. Origine et évolution de la notion de "situation" de l'"Ecole linguistique de Londres": de Malinowski à Lyons, par Claude Germain.
Etude de l'évolution de la conception situationnelle de Malinowski, et de son influence chez Firth, les néo-firthiens, et Lyons.

39. Some Aspects of a Semantic Taxonomy, by J. P. Paillet.
Conditions for structural description of linguistic content are examined. Particular emphasis is laid on the phenomena to be considered and the questions of appropriate notation.

57. Vigilant Memory in Speech-Input Segmentation and Error-Correction, by Th. R. Hofmann.
Definition of the vigilant memory and its application to the segmentation and error-correction of natural language input. The vigilant memory is hardware-realizable and has been simulated on a present-day computer.

69. The Montreal MT Prototype, by R. Kittredge.
A description of the mechanical translation system developed at the Université de Montréal; the theory, the computer system, the steps in translating, and future prospects.

83. Universal Quantifiers and Entailment, by D. Lightfoot.
Reason and condition clauses have similar underlying structures. They differ only in terms of whether or not there is an existential presupposition.

97. N.B.

ORIGINE ET EVOLUTION DE LA NOTION DE "SITUATION" DE L'"ECOLE LINGUISTIQUE DE LONDRES": DE MALINOWSKI A LYONS

Claude Germain.

Malinowski (1884-1942) était anthropologue. A première vue, certains linguistes pourraient trouver curieux que soit entreprise l'étude d'une notion linguistique chez un anthropologue. Pourtant, dans le cas de Malinowski, ce qui est surprenant c'est précisément le fait qu'on ne trouve aucune étude traitant de sa conception de la notion de situation. En effet, aucune étude portant sur ce sujet n'est actuellement disponible pour celui qui désire remonter aux origines de ce qui est habituellement appelé (maintenant à tort) l'"Ecole linguistique de Londres". Pourtant, sans ces données, comment apprécier à leur juste valeur les travaux des tenants de cette école? Comment, par exemple, saisir l'apport véritable et l'originalité des conceptions situationnelles de J. R. Firth, de M. A. K. Halliday, de R. M. W. Dixon, de J. Lyons, ou de quelqu'autre "néo-firthien", sans se référer au précurseur de ces conceptions? L'étude de Langendoen (1968)[1] n'a pu traiter que marginalement de ce problème de la situation, le but visé ayant été de mesurer avant tout l'influence des conceptions générales linguistiques (surtout sémantiques) de Malinowski sur Firth et l'"Ecole linguistique de Londres". Quant à l'article "Ethnographic Analysis and Language with Reference to Malinowski's Views" (dans Firth, Raymond, ed., 1957, pp. 93-118), il consiste en une distinction faite par

---

1. Le système de référence bibliographique adopté est le suivant: la première date, entre traits obliques, indique l'année de la première édition (celle du copyright), et la deuxième date indique l'année de l'édition utilisée, à laquelle renvoient les pages données. Lorsqu'une seule date est donnée, cela signifie que l'édition utilisée est la première édition de l'oeuvre.

Cahiers linguistiques d'Ottawa 2. 5 - 34

J. R. Firth entre ses propres conceptions linguistiques générales et celles de Malinowski. Le problème particulier de la situation n'occupe donc là qu'une place secondaire puisque, comme le titre l'indique bien, il s'agit avant tout d'une étude d'un caractère assez général traitant en définitive des rapports complexes entre le langage et l'ethnographie. C'est pourtant Malinowski qui est le créateur des expressions, très en vogue dans la linguistique actuelle, context of situation, situational context, context of culture, etc. Malinowski a cependant apporté à la linguistique firthienne et néo-firthienne beaucoup plus que des termes: une conception linguistique, dont la notion de situation constitue l'élément-clé. C'est à l'étude de cette notion dans quatre oeuvres importantes (au point de vue linguistique) de Malinowski que seront d'abord consacrées ces quelques pages.

Dans "Classificatory Particles in the Language of Kiriwina" (1920), Malinowski préconise l'élaboration d'une théorie sémantique qui pourrait rendre compte de certaines distinctions grammaticales de la langue kiriwinienne. Cette suggestion provient du fait qu'au moment de classer telle ou telle expression dans les noms, dans les adverbes, dans les adjectifs, etc, Malinowski a senti les limites de l'analyse grammaticale formelle. Pourtant, même le recours à des critères sémantiques lui est rapidement apparu comme insuffisant; il a senti la nécessité de compléter quelquefois son analyse sémantique par des incursions dans le domaine de l'ethnographie: "l'analyse de la signification nous a souvent conduit à des descriptions ethnographiques" (p. 78)[2]. Par exemple, ce qui expliquerait l'existence d'une particule spéciale de classification pour chacun des noms désignant des grappes de fruit dans la langue kiriwinienne, ce serait l'importance sociale des grappes de fruits dans cette communauté linguistique puisque l'agriculture constitue le principal facteur de la vie économique de ces régions et que la plupart des cadeaux et des échanges familiaux et sociaux se

2. Cette traduction de l'anglais, ainsi que toutes celles qui vont suivre, sont des traductions personnelles de l'auteur de cet article.

font au moyen de fruits (p. 49). Par connaissance ethnographique, Malinowski désigne ici la connaissance de "tous les aspects de la vie tribale sans exception" (p. 33), comme la religion, l'économie, les coutumes, l'organisation sociale, la psychologie sociale, etc. Cette "ethnolinguistique" comme il l'appelle, pourrait être schématisée de la façon suivante:

faits grammaticaux ←--sémantique←--- connaissances sociologiques et ethnographiques

En 1920, donc, il n'est encore question chez Malinowski que de connaissances d'ordre sociologique et ethnographique auxquelles il est parfois nécessaire de recourir dans l'analyse grammaticale d'une langue indigène.

Deux ans plus tard, dans son volumineux Argonauts of the western Pacific (/1922/, traduit en français en 1963), Malinowski consacre à des problèmes linguistiques un chapitre complet (37 pages) intitulé: "Le pouvoir des mots en magie -- Quelques données linguistiques". Dans ce chapitre, Malinowski rapporte d'abord un certain nombre de textes de magie accompagnés de leur traduction mot à mot. Il croit à cette époque qu'il existe "un ordre magique de la pensée, ou, mieux peut-être, un ordre magique de la parole" se caractérisant par une absence de "concaténation d'idées développant un thème" (p. 501). C'est que le langage de la magie, selon lui, n'est pas destiné, comme le langage ordinaire, à transmettre la pensée mais à "exercer un pouvoir bien précis sur les choses" (id.). Il passe alors à l'étude de certaines particularités linguistiques des incantations. Par exemple, écrit-il, un mot comme papapa ("flottement") remplace la phrase: Que le canot aille vite en sorte que les feuilles de pandanus flottent, et un certain nombre d'autres choses sous-entendues. Comment en est-il arrivé à cette traduction pour le moins surprenante? C'est, explique-t-il, en tenant compte "du contexte de cette formule, du but qu'elle vise ainsi que des diverses idées et coutumes qui s'y rattachent" (p. 503). Plus loin, Malinowski donne l'exemple d'un autre mot, tolabwaga,

que l'on ne saurait parfaitement comprendre, d'après lui, qu'à la condition de ne pas perdre de vue que ce nom désigne un sous-clan et de savoir que dans la sociologie indigène ce sous-clan possède "un droit de priorité en matière de navigation" (p. 525). Malinowski commente alors sa traduction: "Ainsi, le contexte de la phrase dont il fait partie et une connaissance précise de la langue permettront d'abord d'éclairer le sens d'un mot comme celui-ci. Mais en fait, il ne deviendra totalement intelligible que si on le situe dans le cadre même de la vie et de la sociologie indigènes" (p. 529). Autrement dit, Malinowski affirme maintenant que l'ethnologue dispose de trois moyens pour interpréter avec justesse le sens des mots d'une langue indigène: le contexte de la phrase, la connaissance de la langue indigène, et des connaissances d'ordre sociologique et ethnographique. Les deux premiers moyens sont considérés comme essentiels mais insuffisants puisqu'ils ne servent qu'à "éclairer", qu'à donner une idée générale du sens des mots; le troisième moyen sert à perfectionner le sens, à le rendre "totalement intelligible". La saisie du sens est donc conçue, pourrait-on dire, en termes de niveaux, dont le dernier est désigné au moyen de plusieurs expressions équivalentes: "les réalités objectives", "les bases du système social", "les usages et données sociologiques", "les pratiques et les croyances propres à la société étudiée", "la sociologie", "l'organisation sociale et la vie des tribus", "le contexte de la vie tribale", c'est-à-dire, en résumé, "le bagage des connaissances générales, sociologiques et ethnographiques" que l'ethnologue a pu acquérir "par ailleurs" (pp. 524, 528, et 530). On ne trouve le mot situation à aucun endroit. Fait important, Malinowski emploie cependant le mot contexte pour désigner à la fois l'entourage proprement linguistique d'un mot et, occasionnellement, les connaissances extra-linguistiques servant à éclairer le sens de ce mot. Le schéma suivant pourrait donc représenter cette conception:

contexte:
- connaissance de langue
- contexte (intérieur) de la phrase
- connaissances extra-linguistiques: sociologiques et ethnographiques

Même si, comme le fait remarquer Langendoen (1968), du point de vue de sa conception linguistique Malinowski se situe dans la lignée de la linguistique traditionnelle (l'ordre des mots dans les phrases reflète l'ordre des idées dans l'esprit -- contrairement à "l'ordre magique de penser"), il se sépare de ses devanciers par cette croyance en l'insuffisance d'une analyse strictement linguistique pour interpréter correctement le sens des mots. Il ne faut toutefois pas perdre de vue le fait que toutes ces considérations ont été faites essentiellement du point de vue d'un ethnologue, c'est-à-dire d'un observateur dont l'objet d'étude est une langue "étrangère" qu'il faut traduire. Il n'y a qu'un seul passage, très bref, dans lequel il est question de la compréhension du sens des mots par des locuteurs natifs: "L'indigène, qui, lui est au courant, pense à tout cela [au contexte extra-linguistique, c'est-à-dire aux idées, aux coutumes, etc] lorsqu'il entend ou répète papapa" (p. 503). Dans la perspective malinowskienne, la langue est donc subordonnée à l'ethnologie.

Un an après Les Argonautes, paraît en appendice de The Meaning of Meaning (Ogden, C. K., et I. A. Richards, /1923/-1963) un article de Malinowski intitulé: "The Problem of Meaning in Primitive Languages" (pp. 296-336). Dans cet article, à la suite de quelques considérations préliminaires Malinowski, donne le texte suivant accompagné de sa traduction anglaise mot à mot. Le texte se présente comme suit:

Tasakaulo	kaymatana	yakida;
We run	front-wood	ourselves;

tawoulo	ovanu;	tasivila	taqine	soda;
we paddle	in place;	we turn	we see	companion ours.

isakaulo	ka'u'uya	oluvieki	similaveta
he runs	rear-woods	behind	their sea-arm

Pilolu
Pilolu (pp. 300-301).

Ce texte est destiné à montrer dans quelle mesure une simple connaissance des données linguistiques est insuffisante pour trouver le sens d'un texte ou même d'un énoncé particulier. Celui qui veut comprendre au moins le "sens général" (p. 305) de ce texte, écrit-il, doit d'abord savoir qu'il s'agit du récit "d'un épisode qui s'est déroulé lors d'une expédition

commerciale en mer à laquelle ont pris part plusieurs pirogues dans un esprit compétitif" (p. 301). Il s'agit là des "conditions générales" dans lesquelles le texte a été produit. Ce sont ces conditions qui sont désignées par Malinowski comme étant la situation ou le contexte de situation du récit ou d'un énoncé particulier. La connaissance extra-linguistique de ces conditions constitue une sorte de limite inférieure au-delà de laquelle la compréhension d'un texte ou d'un énoncé est impossible: "Si un locuteur, que nous supposons au courant de la langue mais ignorant de la culture des indigènes voulait comprendre même le sens général de ce texte, il devrait en premier lieu être informé de la situation dans laquelle ces mots ont été prononcés" (p. 301 -- c'est nous qui soulignons). Mais, ajoute Malinowski, celui qui voudrait trouver le "sens réel" d'un mot ou d'un énoncé, ou apprécier "toutes les nuances et les détails du sens" des mots (p. 305) devrait en outre posséder une connaissance "totale" des coutumes, de la psychologie sociale, de l'organisation tribale du peuple qui parle cette langue, et même une connaissance "de la structure générale" de cette langue (id.). Par exemple, pour bien comprendre l'énoncé (ou "l'expression") we paddle in place, il ne suffit pas de savoir que paddle veut dire "pagayer"; ce qu'il faut savoir, c'est qu'ici ce mot n'a pas pour fonction de décrire ce que font les hommes de l'équipage mais "d'indiquer leur proximité immédiate du village de leur destination" (p. 304). Cela s'explique par le fait qu'au moment où les pirogues, dans ces régions, sont sur le point d'atteindre la rive d'un village, les membres de l'équipage doivent utiliser des pagaies à cause de la profondeur des eaux qui rend impossible l'utilisation de la perche. D'où, continue Malinowski, to paddle signifie to arrive at the overseas village, in place se traduit par near the village, et tout l'énoncé par we arrive at the village (p. 305). Ce type de connaissance ajoute à la connaissance approximative du sens global fournie par la situation une précision destinée à faire "comprendre correctement" le mot paddle (p. 304). C'est ce qui permet à Malinowski d'affirmer que "le langage est essentiellement enraciné dans la réalité de la culture" (p. 305). Malinowski semble donc concevoir une nouvelle fois l'interprétation du sens -- car tout ceci n'est pas exprimé très

clairement -- en termes de niveaux: plus les connaissances extra-linguistiques de l'auditeur (ou de l'observateur) sont grandes, plus celui-ci est en mesure de saisir toutes les nuances et toutes les finesses du sens des mots. C'est ainsi qu'à la suite de ses propres commentaires servant à l'interprétation de certains mots du texte donné, Malinowski fait observer qu'il ne s'agit là que de commentaires "brefs et à grands traits" (p. 302); mais il ajoute que c'est à dessein qu'il a choisi ce texte puisque celui-ci correspond "à un ensemble de coutumes déjà décrites en détail" dans Les Argonautes, et seul "le lecteur de cette description sera en mesure de comprendre parfaitement le texte cité" (id. -- c'est nous qui soulignons). A la limite, c'est ce qui expliquerait que tout indigène, évidemment au courant de sa propre culture, puisse comprendre "parfaitement" le sens de tous les mots de sa langue. Cette idée se retrouve d'ailleurs dans l'anecdote rapportée par Malinowski, selon laquelle il y aurait eu méprise de sa part pour avoir donné à l'expression boge laymase le sens de they have come already au lieu du sens de they have already been moving hither, qui est le sens que lui donnent les "locuteurs natifs" (p. 304). C'est ce que Malinowski entend par connaissance de "la structure générale de la langue": la connaissance du sens de diverses relations grammaticales, du temps grammatical, etc. En plus de ce type de connaissance, c'est la connaissance du contexte de situation qui semble être pour Malinowski le minimum à posséder ("la connaissance préliminaire" -- p. 301), permettant d'en arriver à une connaissance au moins approximative du sens d'un texte ou d'un énoncé.

Est-ce à dire que le "contexte linguistique" (p. 307) ne joue aucun rôle? Par "contexte linguistique" d'un mot, il faut entendre ici non seulement l'entourage immédiat de ce mot à l'intérieur même de la phrase où il se trouve, mais aussi l'entourage linguistique formé de tous les autres énoncés qui précèdent ou qui suivent cette phrase. Par exemple, écrit Malinowski, on ne comprend bien le sens de l'énoncé we paddle in place que si cette expression "est considérée dans le contexte de l'énoncé total" (c'est-à-dire, ici, le texte entier cité -- p. 306). Mais, s'empresse-t-il d'ajouter, "ce dernier aussi

[le texte entier] ne devient intelligible que s'il est placé à l'intérieur de son contexte de situation" (id. -- souligné dans le texte). Il n'est cependant pas facile de saisir d'une manière précise ce que Malinowski entend par cette dernière expression. Bien sûr, il s'agit des "conditions générales dans lesquelles une langue est parlée" (p. 306). Mais, peut-on se demander, en quoi la situation ainsi définie diffère-t-elle de la culture? Il semble bien que la situation soit considérée chez Malinowski comme un trait caractéristique de la culture, en ce sens qu'à tel type de culture correspondrait nécessairement tels types de situations ou de conditions d'utilisation de la langue: l'ethnographe, écrit-il, étudie "directement les conditions et les situations caractéristiques d'une culture et interprète les textes au moyen de celles-ci" alors que le philologue reconstruit "la situation générale -- c'est-à-dire, la culture des peuples anciens" (p. 307). Il semble donc qu'à la limite, la situation, ou mieux, l'ensemble des situations dans lesquelles une culture se manifeste, puisse être identifée à la culture. Mais, lorsqu'il est question du contexte de situation d'un énoncé, il s'agit simplement des conditions dans lesquelles cet énoncé se produit, conditions qui font partie intégrante de la culture des sujets parlants. Cette interprétation peut d'ailleurs être confirmée par le texte déjà cité dans lequel Malinowski écrit qu'un locuteur qui connaît la langue mais non la culture indigène devrait en premier lieu être informé de la situation de l'énoncé pour connaître au moins le sens général du texte. Ce "en premier lieu" montre bien que le contexte de situation est une partie, la première ou la plus élémentaire, de la culture, cette dernière étant constituée de la totalité de ces situations.

C'est cette conception du contexte de situation, ajoute Malinowski, qui sert de critère de différenciation des langues mortes et des langues vivantes. En effet, dans les langues mortes, qui n'existent que sous la forme d'inscriptions ou de documents écrits, les énoncés sont "naturellement isolés, détachés de tout contexte de situation" puisqu'ils ont été produits "dans le but d'être auto-suffisants et auto-explicatifs", afin de porter leur message "à la postérité sans aide" (p. 306 -- souligné dans le texte). Bien sûr, ajoute-t-il,

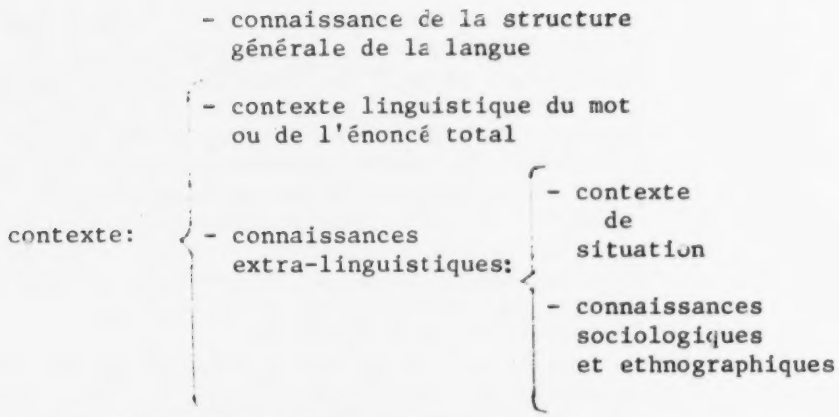
même dans le cas d'un livre scientifique moderne, "le sens est totalement contenu (...) dans le livre" (p. 307). Par contre, "lorsque l'on passe d'une langue moderne civilisée [surtout écrite] ou d'une langue morte qui ne survit que dans des inscriptions à une langue primitive jamais écrite (...), il est faux et vain de concevoir le sens comme étant contenu dans un énoncé. (...) Enoncés et situation sont liés inextricablement et le contexte de situation est indispensable à la compréhension des mots. De même que dans la réalité des langues parlées ou écrites, un mot sans contexte linguistique n'est que pure fiction et ne veut rien dire en soi, de même dans la réalité d'une langue parlée vivante, l'énoncé n'a aucun sens si ce n'est dans le contexte de situation dans lequel il se trouve" (p. 307 -- souligné dans le texte). Si le sens d'un mot ou d'un énoncé ne peut être donné que par son contexte de situation, explique Malinowski, c'est que la langue est toujours utilisée en liaison avec une activité humaine corporelle, comme le fait de pêcher, de chasser, d'acheter, de vendre, etc: "le langage dans ses formes primitives doit être regardé et étudié en tenant compte de l'arrière-plan des activités humaines et comme un mode de comportement humain" (p. 312). Par contre, "dans ses fonctions littéraire et scientifique, [le langage] est un instrument de la pensée et de communication de la pensée" (p. 297); mais, il ne s'agit là que d'une "fonction dérivée" du langage (p. 312), et "ce n'est que (...) dans ces usages les plus hauts que le langage est employé pour encadrer et pour exprimer la pensée" (p. 316).

Dans le cas d'un récit, la relation à la situation est double. Il y a d'abord la situation du moment de la narration, constituée par les "attitudes sociales, intellectuelles, et émotionnelles des auditeurs présents" (p. 312); même dans ce cas, le récit n'est pas un reflet de la pensée mais "un mode d'action sociale" visant à modifier les attitudes des auditeurs (p. 313). Il y a aussi la situation à laquelle le narrateur se réfère. Dans ce cas, les mots ont un sens grâce "aux expériences antérieures des auditeurs" qui ont d'abord acquis le sens de ces mots d'une manière directe, en liaison avec l'activité humaine correspondante. Mais, dans le cas particulier de l'utilisation gratuite de la langue, c'est-à-dire dans les cas de ce que Malinowski appelle "la relation phatique" (phatic communion) (p. 315 -- cette idée sera plus tard empruntée à Malinowski par Roman Jakobson, /1960/-1963, qui l'intégrera à son

schéma de la communication verbale sous le titre de "fonction phatique" (pp. 217 et 220), que devient la situation? Dans des énoncés comme Beau temps aujourd'hui, n'est-ce-pas? Comment ça va?, etc, "la situation consiste précisément dans cette atmosphère de sociabilité et dans l'attitude des gens entre eux. Mais cela est en fait atteint par la parole, et la situation dans tous ces cas est créée par l'échange de mots, par les sentiments spécifiques qui forment un grégarisme jovial, par le va-et-vient de l'énoncé qui fait le bavardage ordinaire. La situation totale consiste en ce qui se produit linguistiquement" (p. 315).

Comme l'a très bien fait remarquer Langendoen (1968), les conceptions linguistiques générales de Malinowski exprimées dans cet article sont à l'opposé de ses conceptions antérieures (pp. 15-16). En effet, contrairement à ce qu'on trouve dans Les Argonautes un an plus tôt seulement, le langage de la magie n'est plus ici considéré comme un genre particulier mais bien comme un exemple de l'utilisation primitive du langage; c'est maintenant l'utilisation du langage destiné à communiquer des idées qui apparaît comme un type particulier ou "dérivé" du langage. Mais, ce qu'il importe surtout ici de savoir, c'est dans quelle mesure cette conception de la situation de Malinowski peut être rapprochée de ses propres conceptions antérieures.

Dans Les Argonautes, il a été dit que l'observateur disposait de trois moyens pour interpréter correctement le sens des mots. Dans "The Problem of Meaning", Malinowski apporte une précision à cette conception: il sépare en deux le niveau des connaissances extra-linguistiques: un niveau essentiel, le contexte de situation dans lequel se produisent les énoncés et sans lequel même une appréciation globale du sens d'un texte ou d'un énoncé apparaît comme impossible, et un niveau plus spécifiquement culturel constitué par l'ensemble des connaissances ethnographiques de l'observateur, qui lui permettent d'atteindre le sens des mots ou des énoncés d'une manière plus précise. Ce n'est que dans cette oeuvre-ci qu'apparaît le terme de situation et de ce fait, contexte prend maintenant un sens plus large; il désigne le contexte linguistique total du mot, mais il englobe en même temps et la situation (c'est le contexte de situation) et l'ensemble des connaissances ethnographiques de l'observateur:


- connaissance de la structure générale de la langue
- contexte linguistique du mot ou de l'énoncé total
contexte:
- connaissances extra-linguistiques:
- contexte de situation
- connaissances sociologiques et ethnographiques

Malinowski fait d'ailleurs remarquer qu'il a créé l'expression contexte de situation précisément "pour indiquer d'une part que la conception de contexte doit être élargie et d'autre part [pour] que la situation dans laquelle les mots se produisent ne puisse jamais être considérée comme non pertinente pour l'expression linguistique" (p. 306 -- souligné dans le texte).

Il convient de faire remarquer ici que Malinowski n'a pas été le premier à utiliser le terme de situation en linguistique. Si l'on en croit Firth (1950-1964) c'est au philologue allemand Philipp Wegener (1885) que Malinowski -- et Gardiner -- auraient emprunté ce terme. Il semble cependant peu probable qu'il lui soit venu indirectement de Wegener par l'entremise de Gardiner (/1932/-1951), comme le suppose Langendoen (1964b, pp. 77-78). En effet, à l'époque, Malinowski connaissait assurément l'allemand puisqu'il avait déjà séjourné à Leipzig et à Berlin où il avait travaillé sous la direction de Wundt (Malinowski, /1922/-1963 -- "Présentation", p. 8). Ce qui semble donc plus probable, c'est que Malinowski ait tiré lui-même le terme de situation de l'oeuvre de Wegener (peut-être à la suggestion de son ami Gardiner, ou même de son maître Wundt). D'ailleurs, Malinowski cite le nom de Wegener dans cette oeuvre-ci (/1923/-1952, p. 298) -- tout comme il cite les noms de Wundt, de Gardiner et même de Jespersen (id.)

Les conceptions de Malinowski allaient évoluer: douze ans plus tard, paraît Coral Gardens and Their Magic (/1935/-1965), dont la quatrième partie est intitulée: "Une théorie ethnographique du langage et quelques

corollaires pratiques" (pp. 3-74). Malinowski expose d'abord sa conception pragmatique du langage, et passe à sa "théorie ethnographique du langage" dans la perspective de l'ethnologue désireux de traduire des textes d'une langue indigène: "la vraie traduction repose sur une description ethnographique et linguistique combinée" (p. 17). Par description ethnographique, Malinowski n'entend ici rien de plus que ce qu'il entendait dans "The Problem of Meaning" par les connaissances extra-linguistiques (culturelles) de l'observateur. Toutefois, ce type de connaissance est maintenant désigné par l'expression contexte de culture (p. 18). Par contexte de culture, Malinowski entend "le monde des idées, les activités variées, les règles économiques de l'agriculture" (p. 18 -- c'est nous qui soulignons), ou encore "l'équipement matériel, les activités, les intérêts, les valeurs morales et esthétiques auxquelles les mots correspondent" (p. 22 - c'est nous qui soulignons). Par là, le contexte de situation (les "activités") est donc bien de nouveau inclus dans le contexte de culture.

Plus loin, Malinowski écrit que "la définition contextuelle" de tout énoncé est double: un énoncé appartient à "un contexte de culture spécial", mais parallèlement à ce contexte, l'énoncé se réfère à un autre contexte: "la situation" (p. 51). Le "contexte de culture spécial" n'est ici qu'une façon différente de nommer le niveau des connaissances sociologiques et ethnographiques qui, avec le contexte de situation, forme le contexte de culture. Quant à la partie linguistique de la traduction, ou de la découverte du sens, elle comprend maintenant quatre niveaux ou quatre contextes: le contexte verbal, le contexte grammatical, le contexte que l'on pourrait appeler -- à la suite de Berry (1965, p. xi) -- "paralinguistique", et le contexte de situation:

théorie de la traduction:

a) partie linguistique:
CONTEXTE:
- contexte verbal
- contexte grammatical
- contexte "paralinguistique"

b) partie ethnographique:
- contexte de situation
- contexte de culture:
  - contexte de culture spécial: connaissances sociologiques ethnographiq

Comme on peut le constater par ce tableau, dans cette oeuvre-ci, Malinowski fait une distinction plus nette qu'auparavant entre ce qui relèverait de la linguistique et ce qui relèverait de l'ethnologie.

Ce qui retient surtout l'attention, dans cette conception, c'est le fait que le contexte de situation soit véritablement intégré dans la partie linguistique (en dépit de ses évidentes affinités, d'ailleurs avouées, avec le contexte de culture dont il n'est qu'une caractéristique): "Les mots isolés sont en fait seulement des inventions linguistiques, les produits d'une analyse linguistique avancée. La phrase est parfois une unité d'analyse linguistique autosuffisante, mais même une phrase ne peut pas être considérée comme le donné linguistique total. Pour nous, le fait linguistique réel est l'énoncé total à l'intérieur de son "contexte de situation" (p. 11). Par contexte de situation, Malinowski entend toujours l'ensemble des conditions dans lesquelles se produisent les énoncés (pp. 45, 51, etc). Le seul perfectionnement qu'il ajoute à cette expression, c'est qu'il s'agirait vraisemblablement d'éléments physiques observables: il utilise les expressions situation concrète et contexte physique (p. 16) pour désigner ce type de contexte, et les exemples rapportés n'ont trait qu'à des éléments physiques observables. Il est intéressant de remarquer certaines intuitions de Malinowski. En ce qui concerne les mots-phrases, par exemple, il écrit: "Les mots n'existent pas isolément (...) Les mots sont toujours utilisés dans des énoncés, et bien qu'un énoncé significatif puisse quelquefois se contracter en un seul mot, c'est un cas limite. Une phrase d'un seul mot, comme un commandement, 'venez', 'allez', 'levez-vous', un 'oui' ou un 'non', peut dans des circonstances exceptionnelles être significative seulement dans son contexte de situation" (p. 22). Malinowski a même pressenti le problème des relations entre le contexte (linguistique) et la situation (extralinguistique). C'est ainsi qu'il écrit que toutes les informations données par le contexte de situation n'ont pas besoin d'être exprimées linguistiquement: "Les distinctions faites [verbalement] sont celles qui ne sont pas contenues dans le contexte de situation, et seulement ce qui n'est pas dans le contexte [de situation] est exprimé verbalement" (p. 69).

Quant au niveau du contexte "paralinguistique" de l'énoncé, il comprend ce que Malinowski appelle "les gestes significatifs occasionnels" (p. 45), "l'expression du visage, les gestes, les mouvements du corps" (p. 22), "la cadence, les accents" (p. 26), "les gestes déictiques" (p. 30), "le contexte des gestes" (id.), etc. Ces aspects du contexte, écrit-il, sont la plupart du temps impossibles à reproduire, mais dans certains cas il est absolument nécessaire de les mentionner: "J'ai été obligé, au moins dans un texte (numéro 8), d'indiquer le geste parce que sans le geste les mots restaient sans signification" (p. 26). Dans les écrits antérieurs de Malinowski, il n'est nullement question de ce type de contexte.

Quant au "contexte grammatical", désigné en fait comme le "contexte des expressions opposées et apparentées" (pp. 16 et 21), comme "l'ensemble des expressions apparentées et de même nature" (p. 17), ou comme "l'usage linguistique" (p. 16), il constitue aussi une nouveauté. Il s'agit d'une tentative de définition de la signification d'un terme en le rapprochant de la signification des autres termes pris en contexte ("verbal"). Par exemple, écrit Malinowski, "c'est par l'opposition du mot buyagu aux deux mots odila et yosomo (...) que le mot buyagu est défini d'une manière plus précise" (p. 16); "les mots buyagu, bagula, baleko sont définis en les plaçant dans une série de termes dont les usages s'excluent mutuellement" (id.). C'est par ce type d'analyse grammaticale, précise-t-il, que l'on peut arriver à dégager "la signification primaire" d'un mot et montrer ainsi quels sont ses dérivés "par une recherche soignée des contextes verbaux (...) Si un mot est utilisé dans un contexte différent, il ne peut pas avoir la même signification; il cesse d'être un seul mot et devient deux ou plusieurs unités distinctes sémantiquement" (p. 72). C'est aussi ce type d'analyse qui permettrait de traiter convenablement des homonymes et des cas d'ambiguïté. Par exemple, écrit-il, "I-woy-ye tau signifie 'l'homme bat' ou 'il (sujet impliqué) bat l'homme'. Le contexte donne la solution" (p. 32). Dans un cas comme celui-ci, fait-il remarquer, "l'ambiguité et la confusion apparaissent quand nous jetons les mots sur le papier après les avoir tirés de leur contexte et essayé de les réinterpréter de notre point de vue, c'est-à-dire celui d'une culture entièrement différente" (pp. 36-37). Par contre, fait-il remarquer, dans le cas de l'utilisation réelle

du langage, "je n'ai noté aucune confusion dans l'esprit du sujet parlant" (p. 20).

Le quatrième type de contexte, le "contexte verbal" (p. 13), consiste toujours dans l'entourage proprement linguistique de l'unité étudiée: "La phrase n'est pas une unité de parole auto-suffisante (...) Exactement comme un mot simple est -- sauf dans des circonstances exceptionnelles -- sans signification, et reçoit sa signification seulement grâce au contexte des autres mots, de même une phrase apparaît habituellement dans le contexte des autres phrases et a une signification seulement en tant que partie d'un tout significatif plus grand" (p. 22). A la suite de toutes ces considérations contextuelles, Malinowski rejette catégoriquement sa conception antérieure exposée dans "The Problem of Meaning", selon laquelle les textes écrits modernes, par exemple, étaient considérés comme "détachés de leurs sources pragmatiques" (p. 58): "c'était une erreur, et une erreur sérieuse. Entre l'usage des mots chez les primitifs et l'usage le plus abstrait et théorique, il n'y a qu'une différence de degré. En définitive toutes les significations de tous les mots proviennent d'une expérience corporelle" (id.). Même les chiffres abstraits du mathématicien, écrit-il, ont d'abord été appris d'une manière pratique -- comme le fait de compter des objets concrets ou de l'argent, par exemple.

Dans Coral Gardens, il ne semble donc pas, comme le croit Berry (1965, p. xi), que le contexte de situation chez Malinowski inclue à la fois le contexte de culture (que Berry appelle "contexte de présomptions") et le contexte que Berry appelle "perceptuel". Bien au contraire, la situation est conçue chez Malinowski comme une caractéristique de la culture. Cette caractéristique diffère des autres caractéristiques en ce qu'elle est le seul élément de la culture à être conçu comme essentiel pour la découverte de la signification; les autres aspects de la culture (croyances, coutumes, organisation sociale et économique, etc) ne consistent qu'en connaissances additionnelles simplement utiles à une appréciation plus exacte de la signification des mots. L'expression contexte de situation n'est donc pas synonyme, non plus, dans cette oeuvre-ci, de contexte de culture, comme l'affirme Langendoen (1968, p. 35).

De plus, le fait que Malinowski ait insisté sur la nécessité de faire reposer l'analyse linguistique avant tout sur une description ethnographique (pp. xix, 18, 19, 21, etc) ne signifie pas, comme le croit Carroll (1953) "que l'inverse serait faux" (p. 116); au contraire, pour Malinowski le langage n'est qu'un aspect de la culture (p. xix) et son oeuvre entière montre bien, comme il le dit lui-même, jusqu'à quel point "sans le langage, la connaissance de n'importe quel aspect de la culture est incomplète" (p. 21).

En somme, de "Classificatory Particles" (1920) à Coral Gardens (/1[illegible]/-1965), il semble bien qu'il faille voir deux grands moments dans l'évolution de la conception malinowskienne de la situation. Un premier pas a été franchi par Malinowski, de "Classificatory Particles" aux Argonautes: les données sociologiques et ethnographiques ne jouent plus seulement un rôle dans l'explication de certains faits grammaticaux, par l'intermédiaire de la sémantique, mais servent à l'interprétation de la signification même des mots. Avec "The Problem of Meaning", apparaissent le terme de situation et l'expression contexte de situation: une deuxième étape est franchie, par la distinction que fait Malinowski entre les connaissances extra-linguistiques qui appartiennent au contexte de situation et celles qui sont plus proprement sociologiques et ethnographiques. Mais, à partir de ce moment (1923), la conception du contexte de situation n'évoluera plus chez Malinowski: même dans Coral Gardens la situation est toujours conçue comme l'ensemble des conditions anthroposociologiques dans lesquelles un texte est produit. C'est plutôt la terminologie qui évolue (contexte de culture est maintenant l'expression qui sert à caractériser à la fois le contexte de situation et les connaissances sociologiques et ethnographiques), ainsi que les subdivisions des autres parties du contexte (verbal, grammatical et "paralinguistique"). En d'autres termes, de "Classificatory Particles" à Coral Gardens, la notion générale de contexte s'élargit progressivement, mais la notion de contexte de situation, apparue en 1923, n'évolue pas: tout au plus dans Coral Gardens trouve-t-on quelques précisions visant à montrer que cette notion consiste surtout en éléments physiques observables.

Les conceptions de Malinowski n'allaient pas en rester là. Elles allaient être reprises et développées par Firth, le véritable créateur de l'"Ecole linguistique de Londres". Firth a accédé à la Chaire de linguistique générale de l'Université de Londres en 1944, mais il a fait son entrée sur la scène linguistique dès 1930 avec la publication de Speech-(1930/-1964-66). Dans cette oeuvre, Firth affirme que même dans la conversation la plus banale ce ne sont pas les mots qui sont les plus importants mais "le contexte de situation perçu" (p. 174). Il suffit de souligner ici l'étroite parenté de ces propos non seulement avec les conceptions de Malinowski mais avec celles de Gardiner, qui ne seront en fait publiées que deux ans plus tard (Firth, Gardiner, et Malinowski étaient de grands amis -- cf., par exemple, Firth, /1935/- 1964b, p. 7). Ce n'est qu'après 1930 que Firth commence à concevoir l'étude de la signification en termes de niveaux: phonétique, lexical, morphologique, syntaxique, et sémantique, chacun de ces niveaux étant relié à un contexte: phonologique, lexical, morphologique, syntaxique, et situationnel. Dans "The Technique of Semantics" (/1935/-1964a), Firth caractérise ainsi sa démarche: "La technique que je viens d'esquisser consiste davantage en une analyse empirique qu'en une analyse théorique de la signification. Elle peut être décrite comme une série de contextualisations de nos faits, contextes à l'intérieur de contextes, chacun étant une fonction, un organe du contexte plus grand et tous les contextes étant situés dans ce que l'on peut appeler le 'contexte de culture'" (p. 32).

Parmi ces contextes, dont la totalité constitue le 'contexte de culture', il en est un qui, selon Firth, occupe une place privilégiée: "Le concept fondamental de toute la sémantique considérée de cette façon est le contexte de situation. Ce contexte comprend le ou les participants humains, ce qu'ils disent et ce qui se produit. (...) Si l'on veut tenir compte de l'arrière-plan culturel général, on trouve les contextes d'expérience des participants. Tout homme porte sa culture et une bonne partie de sa réalité sociale avec lui, où qu'il aille (...). Je réserve le terme de 'sémantique' pour

cette étude de situation et d'expérience" (p. 27). Contexte de situation n'est donc pas synonyme, chez Firth, de contexte de culture. Le contexte de situation fait partie, n'est qu'une des composantes du contexte de culture:

Contexte de culture:
- contexte phonologique
- contexte lexical
- contexte morphologique
- contexte syntaxique
- contexte situationnel

Est-ce à dire, comme le prétend Langendoen (1964a, pp. 307-308), que le contexte de situation ne comprend que les éléments "observables" de la culture? Le contexte de situation, chez Firth, comprend des phénomènes observables (c'est-à-dire traitables dans les termes du behaviorisme) mais comprend aussi des réalités inobservables, comme l'arrière-plan d'expérience commun aux interlocuteurs. D'ailleurs, à plusieurs reprises, Firth fait état du caractère abstrait du contexte de situation, qu'il désigne comme une "construction schématique abstraite", n'ayant aucun statut ontologique (/1950/-1964c, pp. 181-182; /1951/-1964d, p. 203): "Le 'contexte de situation' doit de préférence [à la conception de Malinowski] être utilisé comme une construction schématique appropriée à appliquer aux événements du langage (...) c'est un groupe de catégories reliées à un niveau différent des catégories grammaticales mais qui est plutôt de la même nature abstraite" (/1950/-1964c, p. 182). Firth continue en énumérant les diverses catégories qu'un contexte de situation met en relation: les traits pertinents des participants (leur action verbale et leur action non verbale), les objets pertinents, et les effets de l'action verbale (id. -- repris textuellement dans /1951/-1964d, p. 203).

Ce qui importe davantage à Firth, c'est le fait que les contextes de situation, comme les types de fonction linguistique, peuvent être décrits et classés -- à l'intérieur, bien entendu,

du contexte de culture (/1935/-1964b, p. 27). En effet, selon Firth, pendant toute la période de notre croissance, nous apprenons à nous adapter aux divers niveaux de l'organisation sociale, "à dire ce que nos compagnons espèrent que nous disions dans telle ou telle circonstance" (p. 28). Firth insiste alors sur le fait que la plus grande partie de notre langage est en quelque sorte un langage de routine, un langage stéréotypé, lié à notre statut social: "Nous naissons dotés d'un vaste héritage culturel en puissance, mais nous ne pouvons qu'espérer bénéficier d'une faible partie de cet héritage total, et seulement par étapes. Il semble y avoir un besoin d'insister sur le fait qu'à chaque étape de l'enfance et de l'adolescence, pour chaque type d'enfant, il y ait un environnement approprié et des formes appropriées de langage" (p. 29). Firth fait alors un rapprochement entre les études "biographiques" de la parole et "l'accumulation des rôles sociaux" (id.). De la multiplicité de nos rôles sociaux, en tant que membres d'une race, d'une nation, en tant que frère, père, travailleur, etc, découle notre spécialisation linguistique: "Le concept central de la technique ici esquissée est le contexte de situation, dans lequel, dans un sens, sont impliquées des tranches entières de biographie personnelle et d'histoire culturelle, et dans lequel le passé, le présent et l'avenir se rencontrent tous" (p. 18).

Dans cette perspective, Firth est évidemment amené à rejeter la conception de l'unité de la langue: "l'unité est le dernier concept qui devrait être appliqué au langage"; "une langue une n'existe pas et n'a jamais existé" (id. -- souligné et en français dans le texte). Firth trace alors les grandes lignes de ce que pourrait être une classification des contextes de situation. Il distingue d'abord certaines catégories élémentaires, comme le fait de parler, d'écouter, de lire, d'écrire, certaines formes familières de la parole, et des formes plus spécialisées comme le langage de l'école, de la loi, de l'église, etc. Il ajoute ces types de situations dans lesquelles la parole est utilisée sans but, gratuitement, qu'il appelle, à la suite de Malinowski, la "relation phatique", et ces types de situations dans lesquelles une activité humaine corporelle

accompagne le langage, comme le fait de chasser, de pêcher, de vendre, etc, en se référant de nouveau explicitement à Malinowski. Dans tous ces cas, il s'agit, écrit Firth, de "contextes de situation typiques" (p. 27). A la suite de cette classification, Firth esquisse une classification des "types de fonction linguistique" puisque, selon lui, chaque type de contexte de situation se caractérise par divers types de fonction linguistique ou types d'énoncés, comme le fait de raconter, de décrire, de juger, de persuader, d'encourager, etc (pp. 31 et 32).

De l'ensemble de ces considérations de Firth sur le rôle de la situation en linguistique, deux remarques principales s'imposent. D'abord, la théorie firthienne du contexte de situation, comme plusieurs l'ont déjà fait remarquer (Robins, 1961, p. 195; Lyons, 1966, pp. 288 et 301, et Ellis, 1966, p. 79), n'a été l'objet d'à peu près aucune application (sauf par Mitchell, 1957). La deuxième remarque concerne la tentative de Firth d'éviter le "particularisme" reproché à la conception malinowskienne de la situation. Firth a tenté de s'en tirer en adoptant une conception de la situation de nature plutôt abstraite, pouvant faire l'objet d'une certaine généralisation. Toutefois, en concevant la situation comme l'aspect de la situation sociale dans laquelle les gens en arrivent à se trouver à un certain moment, c'est-à-dire comme un facteur déterminant des rôles sociaux que chaque individu est amené à jouer dans la vie, Firth a été conduit à son insu à une étude des "styles de la parole" appropriés aux rôles sociaux joués par les individus (Palmer, 1958, p. 237, et Langendoen, 1968, p. 45). Classer les énoncés d'une langue en "contextes de situation typiques" ne peut pas, comme le croit Firth, être le but de la sémantique. Même Palmer (1958), un des membres de l'"Ecole linguistique de Londres", a reconnu cette insuffisance et a écrit qu'on ne saurait faire un usage linguistique de la situation ainsi conçue: "En pratique, écrit-il, seulement une faible partie de ce que l'on entend habituellement par signification, apparaît comme traitable en termes de contexte de situation" (p. 236). Plus récemment, Lyons (1966) a montré, à la suite d'un examen critique de cette conception sémantique, qu'en mettant l'accent sur l'aspect

sociologique de la langue, Firth a contribué à battre en brèche la conception traditionnelle de la langue vue uniquement comme l'expression de la pensée, mais a en fait très peu contribué à l'élaboration d'une théorie sémantique valable (pp. 294 et 300), surtout avec l'emploi d'une notion de situation beaucoup trop "vague et mal définie" (p. 292).

A la suite de Firth, la seule étude importante concernant la situation est celle de Lyons (1963a). A part cette étude, que nous examinons plus loin, on trouve en fait très peu de développements de la notion de situation chez les "néo-firthiens". Chez Halliday (1962), par exemple, le contexte consiste dans le rapport entre la forme linguistique (grammaire et lexique) et la situation ou "faits non-linguistiques associés" (pp. 7-8); mais on ne trouve aucun développement de ces "niveaux" du langage: "J'ai laissé de côté, écrit-il, le niveau contextuel: non seulement par manque de temps (raison suffisante, quand même) mais aussi parce que c'est le domaine le plus controversé" (p. 29). Tout au plus y trouve-t-on une terminologie différente: le contexte linguistique général est devenu l'environnement, le contexte verbal ou linguistique est devenu l'environnement formel et le contexte de situation est devenu l'environnement contextuel -- Dixon (1964b), dans le cadre du schéma de Halliday reformulé à sa façon, a d'ailleurs intitulé un de ses articles: "On formal and contextual meaning". D'où, selon Halliday, même un texte écrit ne peut pas être dit "contextualisé": "Si le texte à traduire est écrit, l'environnement est purement formel. (...) Un texte parlé, par contre, est déjà contextualisé: c'est-à-dire qu'il fonctionne dans une situation (...) Du moment où le texte parlé est enregistré au magnétophone, il n'y a plus de situation: il devient une fois de plus décontextualisé, tout à fait comme un texte écrit" (p. 34).

Plus récemment, cette conception a été reprise par Ellis (1966) qui, cette fois, a tenté de dresser une liste des composantes de la situation (en termes de "situation immédiate", "situation médiate", "caractéristiques des participants", "régistre", "contexte de mention", etc): "ces composantes situationnelles, ajoute-t-il, sont générales, s'appliquant en tant que catégories abstraites aux situations

extra-linguistiques quelle que soit la langue" (p. 82)[3].

Quant à Robins (1952), il n'a fait que situer la conception malinowskienne et firthienne du contexte de situation par rapport à la conception bloomfieldienne et par rapport aux approches logiques ou psychologiques du problème. Il a insisté surtout sur le fait que le contexte de situation est une abstraction dénuée de tout "statut ontologique" (p. 131) et qu'il ne peut exclusivement être traité en termes d'entités physiques observables mais doit aussi comprendre les expériences mentales des sujets parlants: "C'est à l'intérieur du contexte de 'l'homme total', (...) que les mots ont une signification" (p. 129).

De son côté, Dixon (1963b, 1964a, 1964b) a adopté vis-à-vis de la situation ce qu'il a appelé lui-même une position "extrémiste" (1964a, p. 14). Il fait une distinction entre une signification "formelle" et une signification "contextuelle" et remarque, entre autres choses, qu'il ne saurait y avoir de correspondance "directe" entre la forme linguistique et divers traits de la situation (1963b, p. 39). Il note en outre que dans certains cas les traits pertinents de situation sont nombreux, comme dans le cas de la conversation de tous les jours alors que parfois, comme c'est le cas pour les récits, il y en a peu. Dans ce dernier cas, il s'agit d'une activité linguistique "isolée" (p. 40). Le fait que l'activité linguistique puisse faire appel à des traits situationnels à des degrés divers est représentable, selon Dixon, sous forme de plan ou d'échelle dont les extrémités consisteraient d'une part en un "isolement complet" et d'autre part en une

3. Ellis fait aussi allusion à une discussion tenue en 1962 en Angleterre, portant sur la théorie du contexte et de la situation, au cours de laquelle il aurait été suggéré qu'une division plus souple soit faite afin de "rompre la dichotomie entre contexte et situation au moyen d'une ou de plusieurs divisions additionnelles" (pp. 89-90, notes 8 et 9).

"absence quasi-totale d'isolement" (id.). Ces traits situationnels sont conçus dans des termes probabilistes. Dixon fait en outre une distinction entre les différents types de langage qui se produisent dans diverses sortes de situations; il nomme ces "variétés" de langages des "régistres" (p. 40). Il fait donc une distinction entre les "types de situations" et les "traits situationnels liés aux formes linguistiques" (pp. 40-41): "Il y a une grande différence entre les traits situationnels qui sont reliés à des catégories formelles particulières (d'une manière indirecte), et les types de situation auxquels correspondent différents régistres, ou 'variétés' du langage" (p. 41).

En 1963, dans son essai de sémantique structurale, Lyons (1963a)[4] fait d'abord une distinction entre contexte et environnement car l'environnement (défini dans les termes de Harris) est considéré comme une notion grammaticale et phonologique, mais non sémantique (p. 25). Selon Lyons, l'environnement est logiquement dépendant de l'identification antérieure des éléments à un niveau donné d'analyse (p. 13). Par exemple, au niveau de l'analyse en constituants immédiats, l'environnement de planes est différent dans They (are (flying...)) et dans They (are flying) (...). Autrement dit, deux environnements peuvent consister en des suites identiques ou semblables en surface, mais différentes dans leur histoire transformationnelle (pp. 13-14, et 119-120; voir aussi le compte rendu de Hoenigswald, 1965). Le contexte, de son côté, comprend les énoncés qui précèdent la phrase étudiée (pp. 82-83), et ces "contextes verbaux" consistent en la connaissance extra-linguistique que les interlocuteurs acquièrent dans le déroulement même de la conversation (pp. 82-83 et 85). Toutefois, le contexte comprend quelque chose de plus que cette "connaissance partagée par le locuteur et par l'auditeur de tout ce qui précède" (p. 83); il comprend aussi, d'une part les objets physiques externes et les actions observables, et d'autre part, d'une manière plus abstraite, l'ensemble des "conventions et présuppositions acceptées

4. Le passage qui suit, consacré à Lyons, est extrait de La notion de situation en linguistique de l'auteur, Editions de l'Université d'Ottawa (à paraître en octobre 1971).

dans la société dans laquelle vivent les participants, dans la mesure où celles-ci sont pertinentes pour la compréhension de l'énoncé" (id.). Par exemple, dans le cas d'une phrase écrite, cette partie du contexte consisterait dans "les conventions ayant trait au genre littéraire" du texte étudié (id.), comme le "discours philosophique", le "rapport", etc (p. 102). Dans l'ensemble, donc, le contexte comprend le contexte verbal au sens large ou connaissances extra-linguistiques acquises lors de la conversation, les entités physiques observables de la réalité, et les présuppositions ou conventions sociales ayant trait au type de comportement linguistique utilisé (ou "univers du discours"). Et la situation? C'est le contexte: "Toute unité significative, jusque et y compris l'énoncé complet, a une signification dans un contexte. Le contexte de l'énoncé est la situation dans laquelle il se manifeste (...) Le concept de situation est fondamental pour pouvoir affirmer quelque chose en sémantique" (p. 23). Pourtant, comment expliquer que Lyons utilise parfois l'expression contexte de situation ou contexte situationnel? Une explication est donnée dans le compte rendu de cet ouvrage par Mounin (1968d): "Prisonnier de la très malheureuse terminologie anglaise, il appelle context ce que les linguistes appellent situation (et ce que tout le monde appelle contexte, il est obligé de le nommer environnement; mais comme le sens traditionnel de context reste perceptible, même pour lui, il multiplie, pour éviter toute équivoque, les situational contexts et les contexts of situation, à distinguer des verbal contexts)" (p. 138 -- souligné dans le texte). On peut donc regrouper ainsi les composantes du contexte: le contexte verbal, et le contexte situationnel (ce dernier étant composé d'une partie observable, et d'un "univers du discours"):

Contexte ou situation:
- contexte verbal
- contexte situationnel:
  - objets physiques et actions observables
  - conventions e présuppositio (univers du discours)

Lyons reconnaît explicitement (p. 85, note 1) avoir suivi en partie la conception de la situation de Firth, mais il est aussi conscient d'introduire, du moins en théorie, un concept de situation à la fois plus large et plus abstrait.

Pour comprendre le rôle que Lyons attribue à la situation, il est maintenant nécessaire d'exposer les grandes lignes de sa conception sémantique. Lyons fait d'abord une distinction entre "avoir une signification" (to have meaning) et "signification" (meaning). Une unité, selon lui, ne peut "avoir une signification" qu'en contexte, car le fait d'avoir ou non une signification, pour une unité, est une question de choix ou de probabilité (pp. 25-26; aussi 1966, p. 298). Se basant sur les données de la théorie de l'information, Lyons tente de montrer qu'une unité "a une signification" dans la mesure où son occurrence n'est pas totalement déterminée par la situation (ou par le contexte, dans sa terminologie) et inversement. C'est le cas, par exemple, du prego italien "imposé socialement dans certains contextes": dans ces contextes ce mot n'a pas de signification (1963a, pp. 25-26). Après avoir ainsi établi qu'une unité "a une signification" dans un certain contexte -- et non dans la totalité de la langue, celle-ci n'étant pas un système clos -- il reste à trouver quelle est cette signification. La signification est alors conçue en termes de "relations de signification" (dépendantes du contexte de l'unité), ces relations formant des "sous-systèmes lexicaux", c'est-à-dire une structure sémantique. La signification est fonction, chez Lyons, de relations de signification, comme la relation d'incompatibilité (rouge-vert), d'antonymie (mâle-femelle), d'hyponymie (tulipe subordonnée à fleur), de synonymie (ouvrier-travailleur), etc. Les relations de signification précèdent logiquement la signification: "le fait que je considère comme le plus important, [c'est que] les relations de signification (...) sont logiquement antérieures à la notion de signification elle-même" (p. 89; aussi, pp. 58-59, et 1966, p. 294). Par exemple, "a n'est pas synonyme de b à cause de sa signification; le fait de leur synonymie fait partie de leur signification" (1963a, p. 58).

Il ne nous appartient pas de discuter ici de la validité des critères fournis par Lyons pour établir ses relations de signification ou champs sémantiques. Toutefois, comme l'a fait remarquer avec raison Mounin (1968), "si on pose que la signification d'un terme est uniquement déterminée par les oppositions qu'il soutient avec tous les termes de son sous-système lexical, c'est-à-dire si on pose que sa signification est différentielle, on se condamne au solipsisme" (p. 139 -- souligné dans le texte). On peut donc se demander dans quelle mesure Lyons échappe au solipsisme. D'après Mounin (1968), "Lyons échappe au cercle vicieux de sa construction logique en réintroduisant de manière empirique (à la faveur de l'ambiguité context = situation) les corrélations aujourd'hui bien acquises entre la meaning et ce qu'elle vise dans le monde non linguistique" (p. 139 -- souligné dans le texte). Pourtant, il nous paraît difficile de voir en quoi cette théorie échappe au solipsisme, puisque le rôle attribué par Lyons à la situation (synonyme de contexte) ne semble d'aucune manière contribuer à l'établissement de la signification. En effet, la situation telle qu'elle est conçue par Lyons ne sert que de support à l'établissement des probabilités d'occurrence d'une unité. Autrement dit, la situation ne contribue pas à déterminer la signification d'une unité, mais ne sert qu'à faire savoir si une unité a ou n'a pas de signification. Pourtant, même dans ce cas, comme le fait observer à juste titre Hoenigswald (1965), les situations sociales qui déterminent l'occurrence de prego, par exemple, peuvent donner lieu à des variations comme prego, prego, ou comme prego, Signore (Signora...), etc (p. 193, note 3). Comme l'a également noté Wyatt (1965), "il est difficile de voir ce que la définition du contexte chez Lyons a à faire avec la signification" (p. 507). En définitive, on ne comprend pas en quoi "le contexte de situation est pertinent, non seulement dans l'établissement de la fonction sémantique de l'énoncé total, mais aussi dans l'établissement de la fonction des éléments constitutifs, cette fonction étant leur contribution à la signification du tout dans une situation particulière" (Lyons, 1963a, p. 24). Dans la deuxième partie de son volume, par exemple, lorsqu'il tente d'appliquer sa théorie sémantique à une partie du vocabulaire de Platon, Lyons n'utilise en rien la situation

pour déterminer la signification des unités étudiées; il s'en sert même à peine comme moyen de détermination de la probabilité d'occurrence des unités. Le seul emploi qu'il fait de la situation n'est rien de plus, en pratique, que l'emploi déjà préconisé par Firth: classer tel texte, par exemple, dans le domaine du "discours philosophique", du "rapport", etc.

Toutefois, ces catégories situationnelles ne peuvent servir, tout au plus, qu'à l'établissement de divers "styles" de la parole ou de l'écriture (Palmer, 1958, p. 237, et Langendoen, 1968, p. 45 -- remarque faite à propos de Firth, mais valable également ici). Il semble assez douteux que la situation ainsi définie, c'est-à-dire en tant que catégorie au rôle social, puisse largement influencer ou déterminer le langage des individus. Il y a quelques années, une thèse présentée par Wilkins (1966) au Département de linguistique appliquée de l'Université d'Edinburgh, et ayant pour titre Language and Situation, visait à étudier expérimentalement "la nature de la relation entre l'action verbale et les éléments de la situation non verbale" (p. 2). Il s'agissait d'examiner, dans la perspective de Firth, de Halliday, McIntosh et Strevens (1964), dans quelle mesure les catégories du "contexte de situation" pouvaient provoquer un changement dans l'action verbale. Les résultats de l'expérience ont montré que sur 1016 énoncés, seulement 9 étaient reliés à une situation sociale, soit moins de 1%. Il est aussi apparu que la plupart des énoncés étaient provoqués par d'autres énoncés, ou reliés à des facteurs non observables, surtout d'ordre psychologique (la personnalité des individus, par exemple). Il semble donc assez difficile d'admettre qu'il suffirait de définir (même à la manière de Ellis, 1966) des types de "contextes de situation" pour faire une liste de "types appropriés" de langage, c'est-à-dire, dans la terminologie des néo-firthiens, pour établir des "régistres" (Wilkins, 1966, p. 4).

Même si sur le plan théorique, Lyons a élargi et rendu plus abstraite la notion firthienne de situation, il n'en reste pas moins que, sur le plan pratique, il en est resté à la conception étroite de Firth, selon laquelle la situation ne joue qu'un rôle social. Lyons (1966) a d'ailleurs approuvé d'une façon particulière l'insistance de Firth "sur la multiplicité des situations sociales dans lesquelles le langage fonctionne et le degré auquel ce que nous disons à n'importe quel moment est déterminé par la situation dans laquelle nous nous trouvons et le rôle social particulier que nous jouons dans ce moment" (p. 300). Lyons est donc resté en quelque sorte prisonnier non seulement "de la très malheureuse terminologie anglaise" (Mounin, 1968d, p. 138), mais dans la pratique, de la conception firthienne du rôle de la situation.

En résumé, c'est chez l'anthropologue Malinowski que la notion de situation de l'"Ecole linguistique de Londres" prend sa source. Tout le mérite revient à Malinowski d'avoir bien senti, à partir de problèmes pratiques pris "sur le terrain", les limites et les insuffisances d'une analyse linguistique étroite pour interpréter correctement le sens d'un mot, d'un énoncé ou même de tout un texte. Grâce à ses observations, il a pu ainsi esquisser les grandes lignes d'une théorie linguistique qui tient compte de la situation dans l'interprétation sémantique des énoncés. Toutefois, les successeurs de Malinowski n'allaient pas, comme on l'a vu, se contenter d'adopter sans modification ses conceptions. D'une part, Firth a tenté de rendre plus abstraite la notion malinowskienne de situation, et d'autre part, Lyons a tenté à son tour de rendre encore plus abstraite la notion firthienne de situation, en voulant l'intégrer dans le cadre de sa sémantique structurale. Toutefois, sur le plan pratique, ces tentatives n'ont abouti à rien d'autre qu'à une étude des "styles de la parole", assez éloignée de ce que devrait être une conception scientifique du rôle de la situation dans l'interprétation des énoncés. De ce point de vue, Firth et Lyons ont peu ajouté à Malinowski, dont l'originalité consiste principalement à avoir montré la nécessité de recourir à la notion de situation dans toute analyse linguistique (contrairement, par exemple, aux vues récentes de Katz et Fodor).

Cependant, l'étude de ce rôle de la situation, de son fonctionnement linguistique, n'a pas été entreprise par Malinowski. Cette étude ne nous paraît pas cependant devoir suivre les voies tracées principalement par Firth et par Lyons. La voie tracée par Prieto (1964, 1966, 1968) nous apparaît comme beaucoup plus prometteuse[5].

5. C'est dans cette dernière perspective que nous nous sommes placé dans notre tentative d'explication du fonctionnement linguistique de la situation, dans La notion de situation en linguistique.

BIBLIOGRAPHIE

1. Bazell, C. E., et alii, 1966, In Memory of J. R. Firth, Longmans, Londres, xi-500 p.

2. Berry, Jack, 1965, "Introduction", dans Malinowski, Bronislav, /1935/-1965, Coral Gardens and Their Magic, vol. II, Indiana U.P., Bloomington, Indiana, pp. vii-xvii.

3a. Carroll, John B., 1953, The Study of Language, Harvard U.P., Cambridge, Mass., xi-289 p.

3b. Dixon. Robert M. W., 1963, "A Trend in Semantics", Linguistics, n° 1, pp. 30-57.

4. Dixon, Robert M. W., 1964a, "'A Trend in Semantics': Rejoinder", Linguistics, n° 4, pp. 14-18.

5. Dixon, Robert M. W., 1964b, "On Formal and Contextual Meaning", Acta linguistica Academiae Scientiarum Hungaricae, vol. 14, nos 1 et 2, pp. 23-45.

6. Ellis, Jeffrey, 1966, "On Contextual Meaning", dans Bazell, C. E., et alii, In Memory of J. R. Firth, Longmans, Londres, pp. 79-95.

7. Firth, John Rupert, /1930/-1964-66, Speech, réimprimé avec The Tongues of Men, Oxford U.P., Londres, pp. 139-211.

8. Firth, John Rupert, /1935/-1964, "The Technique of Semantics", dans Papers in Linguistics, 1934-1951, 3e réimpression, Oxford U.P., Londres, pp. 7-33.

9. Firth, John Rupert, /1950/-1964, "Personality and Language in Society", dans Papers in Linguistics, 1934-1951, 3e réimpression, Oxford U.P., Londres, pp. 177-189.

10. Firth, John Rupert, /1951/-1964, "Modes of Meaning", dans Papers in Linguistics, 1934-1951, 3e réimpression, Oxford U.P., Londres, pp. 190-215.

11. Firth, John Rupert, 1957, "Ethnographic Analysis and Language with Reference to Malinowski's Views", dans Firth, Raymond, éd., Man and Culture, Routledge and Kegan Paul, Londres, pp. 93-118.

12. Firth, John Rupert, /1957/-1962, "A Synopsis of Linguistic Theory, 1930-1955", dans Studies in Linguistic Analysis, 2e impression, Basil Blackwell, pp. 1-32, Oxford.

13. Firth, John Rupert, et alii, 1957, Studies in Linguistic Analysis, 2e impression, Basil Blackwell, Oxford, vii-205 p.

14. Firth, Raymond, éd., 1957, Man and Culture, an evaluation of the work of Bronislaw Malinowski, Routledge and Kegan Paul, Londres, viii-292 p.

15. Gardiner, Sir Alan H., /1932/-1951, The Theory of Speech and Language, 2e édit., Clarendon Press, Oxford, xii-348 p.

16. Gardiner, Sir Alan H., 1951, "A Grammarian's Thoughts on a Recent Philosophical Work", Transactions of the Philological Society, pp. 47-68.

17. Germain, Claude, 1971, La notion de situation en linguistique, Editions de l'Université d'Ottawa (à paraître en octobre 1971).

18a. Halliday, M. A. K., 1962, "Linguistique générale et linguistique appliquée", Etudes de linguistique appliquée, nº 1, pp. 5-42.

18b. Halliday, M. A. K., A. McIntosh, et P. Strevens, 1964, The Linguistic Sciences and Language Teaching, Longmans, Londres, 322 p.

19. Hoenigswald, Henry M., 1965, compte rendu de Lyons, John, 1963a, Structural Semantics, dans Journal of Linguistics, nº 2, pp. 191-196.

20. Jakobson, Roman, /1960/-1963, "Linguistique et poétique", dans Essais de linguistique générale, traduit de l'anglais par Nicolas Ruwet, Editions de Minuit, Paris, pp. 209-248; article d'abord paru dans Sebeok, T. A., éd., Style in Language.

21. Langendoen, D. Terence, 1964a, compte rendu de Firth, J. R., et alii, 1957, Studies in Linguistic Analysis, dans Language, vol. 40, nº 2, pp. 305-321.

22. Langendoen, D. Terence, 1964b, Modern British Linguistics: A Study of Its Theoretical and Substantive Contributions, submitted in partial fulfillment of the requirements for the degree of doctor of philosophy at the M.I.T., 245 p. (microfilm); publié en 1968 (voir titre suivant).

23. Langendoen, D. Terence, 1968, The London School of Linguistics: A Study of the Linguistic Theories of B. Malinowski and J. R. Firth, Research Monograph, No. 46, M.I.T. Press, Cambridge, Mass., xii-123 p.

24. Lyons, John, 1963a. Structural Semantics: An Analysis of Part of the Vocabulary of Plato, Publication 20 of the Philological Society, Basil Blackwell, Oxford, 237 p.

25. Lyons, John, 1966, "Firth's Theory of 'Meaning'", dans Bazell, C. E., et alii, In Memory of J. R. Firth, Longmans, Londres, pp. 288-302.

26. Malinowski, Bronislav, 1920, "Classificatory Particles in the Language of Kiriwina", Bulletin of the School of Oriental Studies, vol. 1, 4e partie, pp. 33-78.

27. Malinowski, Bronislav, /1922/-1963, Les Argonautes du Pacifique occidental, traduit de l'anglais et présenté par André et Simonne Devyver, Gallimard, Paris, 606 p.

28. Malinowski, Bronislav, /1923/-1952, The Problem of Meaning in Primitive Languages, supplément à Ogden, C. K., et I. A. Richards, The Meaning of Meaning, 10e édit., Routledge and Kegan Paul Ltd., Londres, pp. 296-336.

29. Malinowski, Bronislav, /1935/-1965, Coral Gardens and Their Magic, vol. II: The Language of Magic and Gardening, réimpression, Indiana U.P., Bloomington, xliv-351 p.

30. Mitchell, T. F., 1957, "The language of buying and selling in Cyrenaica: a situational statement", Hespéris, tome 44, pp. 31-71.

31. Mounin, Georges, 1968, compte rendu de Lyons, John, 1963a, Structural Semantics, dans "Discussion: Travaux récents de sémantique", La linguistique, nº 1, pp. 134-137.

32. Palmer, F. R., 1958, "Linguistic Hierarchy", Lingua, vol. 7, pp. 225-241.

33. Prieto, Luis J., 1964, Principes de noologie - Fondements de la théorie fonctionnelle du signifié, Mouton, La Haye, 130 p.

34. Prieto, Luis J., 1966, Messages et signaux, P.U.F., Paris, 169 p.

35. Prieto, Luis J., 1968, "Sémiologie", dans Le langage, sous la direction d'André Martinet, Encyclopédie de la Pléiade, Gallimard, Paris, pp. 93-144.

36. Robins, R. H., 1952, "A Problem in the Statement of Meaning", Lingua, vol. 3, nº 2, pp. 122-137.

37. Robins, R. H., 1961, "John Rupert Firth", Language, vol. 37, nº 2, pp. 191-200.

38. Robins, R. H., 1963, "General Linguistics in Great-Britain, 1930-1960", dans Mohrmann, C., F. Norman et A. Sommerfelt, éds, Trends in Modern Linguistics, Spectrum Publishers, Utrecht, Hollande, et Anvers, Belgique, pp. 11-37.

39. Robins, R. H., 1969, compte rendu de Langendoen, D. Terence, 1968, The London School of Linguistics, dans Language, vol. 45, nº 1, pp. 109-116.

40. Wegener, Philipp, 1885, Untersuchungen über die Grundfragen des Sprachlebens, Max Niemeyer, Halle, viii-208 p.

41. Wilkins, D. A., 1966, Language and Situation, Thèse (microfilm) présentée au Département de Linguistique appliquée de l'Université d'Edinburgh, Edinburgh, 203 p.

42. Wyatt, William F., 1965, compte rendu de Lyons, John, 1963a, Structural Semantics, dans Language, vol. 41, nº 3, pp. 504-512.

Claude Germain,
Département de Linguistique,
Université d'Ottawa,
Ottawa K1N 6N5,
Ont.

mai 1971

Cahiers linguistiques d'Ottawa

SOME ASPECTS OF A SEMANTIC TAXONOMY

J.P. Paillet,

Carleton University

0. The considerations which follow have to do with meaning and the study of meaning in linguistics. The various uses of the term meaning are notoriously divergent among people who claim to deal with it, and I shall use this term here as a coverall whenever specification is not desirable. Because of the diversity of views in the field, I think it necessary to set as a background to this paper a sketch of some areas of study I think linguistics should include.

1. Humans are equipped with an ability to communicate through speech. This involves transposition of some "ideas" or "thought-patterns" into sound patterns, and an inverse transposition of sound patterns into "ideas".

It strikes me that whenever we speak of this process, we use terms like encoding and decoding. I tend to view the process as a transposition from a code to another code. It is obvious that, at least as long as we are dealing with situations perceived in what we call the "real world", what we can at best transpose into our speech acts are already patterns resulting from perceptual coding of information. In this case, passing from the neurological pattern which results from perception to the sound-pattern of an utterance is definitely of the nature of a change of code.

The study of language should centrally be concerned, it seems to me, with the processes involved in the change of code itself. However, it is easily understood that a serious taxonomy of sound-patterns on the one hand, and the "ideas" thus transmissible on the other, will make it easier to deal with the study of the change in code. It appears to me that most of descriptive linguistics can be subsumed under the

Cahiers linguistiques d'Ottawa 2. 39 - 55

heading of "sound-patterning taxonomy", with in some respects, the notable exception of Sapir. This is particularly clear in the position taken by Harris in Structural Linguistics (Later positions of his will be examined at the end). The generative grammarians have brought only a new way of dealing with parts of the taxonomy. (This assertion must be qualified. Inasmuch as generative grammar tries to account for such relations as paraphrase and ambiguity, it is not only a taxonomy of sound patterns, but also introduces some meaning relations into the organization. But it then exhibits a distressing confusion of objectives, not unlike that embodied in "functional" grammar).

On the other hand, a taxonomy of "ideas" is painfully lacking. Because of theoretical bias, or want of proper equipment, or both, linguists have very much neglected the classification of possible "contents of messages". This area has been somewhat explored by philosophers and logicians, anthropologists and psychologists, and it seems to me necessary that linguists take the pains of building a general taxonomic framework into which they could integrate the ideas or findings of the other workers, at least from the point of view of linguistic analysis. The following is concerned with some aspects of such a taxonomy.

2. A first distinction to be kept in mind is that between lexicology and semantics. Much of the work done under the heading of semantics is in fact some form of lexicology, that is, the investigation of the meaning of lexical items and, more structurally, of their interrelationships. While this endeavor is necessary, I do not think it can be really successful without reference to a more general framework where the organization of whole complex ideas would be considered. What appears as polysemy, for instance, may eventually be accounted for by processes analogous to epenthesis or elision in phonology. It could also be argued, I think, that the confusion between semantics and lexicology is apparent in those discussions of Whorf's hypothesis which center on vocabulary,

whereas Whorf himself obviously had in mind the whole organization of the language. The basic problems of meaning generally have a domain which goes beyond the limitations of vocabulary, and hence many relevant questions must be asked beyond lexicology, which is only the first step into semantics.

3. To my knowledge, Frege is the first to have attempted a formal distinction between sense and referent of an expression. His discussion starts with equational sentences where the distinction is obviously necessary. An equational sentence states identity of the referents of two expressions having different senses. It seems rather easy to state what the referent of an expression is, namely the object of the world (real or imaginary) designated through said expression by speaker to listener. We can liken the referring property of an expression to that of pointing gestures or to that of an instruction manual containing direction to reach a given goal (in this case, identification of the referent). On the other hand, it is much more difficult to obtain a clear specification of what the sense of an expression is.

4. From the logical point of view, we see two basic ways of dealing with this problem. The extensional conception of meaning would say that the sense of an expression is the collection of all its possible referents. But then, in the case of a lexical item in a natural language, the collection may fail to be well-defined, whereas in the case of a uniquely referring expression, such as "the last monarch of France" or "the only French emperor having been captured in battle" the sense would reduce to the unit set of the referent (in this case making the two quoted expressions synonymous). We would also have difficulties with "the present king of France" and other non referring expressions.

The intensional conception of meaning leads to specification of logical relations between items, and uses the syntax of a logical system to build the sense of expressions, which then

appears as the collection of all logical consequences of such expressions. Such a view needs to be modified to take into account, e.g. non referring expressions, tautologies, etc. For instance all logically false sentences would have the same sense, since they all accept any sentence as a consequence. I am not enough of a logician to see exactly how this could be done, but I trust it could.

While it seems that a proper consideration of meaning should involve such consequences, presuppositions etc., as logical analysis isolates, the logical solution is a bit cumbersome, both in its notation and in the calculus needed. We should want a solution where logical relations would be implicitly indicated, and which, naturally, would not exclude the use of logical tools for the research itself. I believe that logical investigation relevant to linguistic analysis is only the beginning, and that many very interesting discoveries are to come through this channel Logical investigation of natural language meaning has the enormous advantage that it is entirely independent of the syntactic organization, thus avoiding an all too frequent confusion of objectives.

5. We must also be aware that logical relations comprising what we may term here logical meaning do not exhaust the "meaning" that naive hearers and speakers attribute to expressions in a human language. (A possible reason will be presented later) Psychologists have been investigating reactions to language material, mainly to vocabulary items. I rely here on Osgood's review of the field (first in Method and Theory in Experimental Psychology, then in The Measurement of Meaning). He sees three phases in the theoretical approach to the problem of meaning. The first substitution theory of signs is largely inadequate. It posits essentially that a sign becomes conditioned to the reactions originally elicited by the significate, which is obviously false most of the time. (There are exceptions, for instance in certain cases of phobia, and "partial" exceptions in the habitual behaviour of many individuals). Charles Morris proposed a modification of the substitution theory influenced by Peirce's semiotics. A sign would not be a substitute for the significate but would produce a "disposition" of the subject which may in turn be manifested

by reactions usually elicited by the significate. The difficulty here is in evaluating the disposition. Osgood proposes a "mediation hypothesis", which should, in his view, make more explicit and consistent Morris's notion of disposition, and also introduce the requirement that the disposition producing property of the sign be acquired by learning. I quote his definition:

"A pattern of stimulation which is not the object is a sign of the object if it evokes in an organism a mediating reaction, this

a/ being some fractional part of the total behaviour elicited by the object.

b/ producing distinctive self-stimulation that mediates responses which would not occur without the previous associations of non-object and object patterns of stimulation."

Osgood explains that, through experiences of the object, the sign becomes a cue, not to the whole pattern of reaction to the object, but to minimal "short circuit" parts of that pattern, which may involve no overt reaction". In the case of what he calls "assigns", there need not even be any experience of the object itself.

It is clear that these short circuited parts of reaction-patterns (I shall call them here "psychological meaning") may be shared by several signs. This serves as a theoretical justification for the method of the "semantic differential" whose development was largely independent. This method can be discussed on several grounds. I, for instance, feel that little is to be gained by it in the understanding of what complex expressions mean. Apparently its efficience is closely limited to lexical items, and even there open to questioning. Nevertheless, the results obtained by the method are here to be observed and accounted for. They plainly show that, if logical relations are sometimes represented in the subjects' reactions, there are also many other aspects to meaning. I propose to call

evocatum the whole collection of mediation processes postulated to occur (and apparently evidenced by the subjects' reactions).

6. We now have a view of meaning involving three very different concepts. It seems that the various notions encountered in semantic studies can be formulated in terms of these three concepts. However, I have not investigated these notions in all their detail. Some research work now in progress may shed light on their interrelationships.

Here are tentative definitions of these three concepts. Given a sign A: Call referent of A [i(A)] the object assigned to A by a given interpretation i.
Call sense of A [S(A)] the collection of restrictions imposed on the possible referents of A. This sense may be expected to appear in the collocations allowed of A with other signs.
Call evocatum of A [E(A)] the elements evoked by - or associated with - A on the basis of direct or mediated (e.g. by definitions) experiences with referents of A. The evocatum of A is by necessity quite variable from speaker to speaker, depending on their experiences (in particular subjected to feedback from "competence") and also vary in time for a given speaker according to new experiences.

If there exists an independently determinable sense to A, the evocatum of A will include it, probably after relatively few experiences.
We may call "connotations of A" the various aspects of the difference (E(A) - S(A)), but we should keep in mind that this term has been used for quite different notions. We should ask whether it is possible to speak of the sense of an expression apart from its evocatum. The boundary is not clear, at any rate. One possible position is to say that the sense is the socialized part of the evocatum. It will then appear as a statistical notion, to be investigated and tested through inquiries among a sufficient number of speakers. The justification of such a position is that, of the evocatum, only the elements shared by at least speaker and hearers are sure to play a role

in the process of communication. Failure of transmission may sometimes be attributed to non-community of some aspects of evocata. I may here quote an example from Eskimo, which possesses a wealth of suffixes, devoted to the semantic area of size, but very often having also an evaluative evocatum. Compare -kuluk and -apik. Apparently, the latter simply states small size, whereas the former has a variable meaning. In some dialects it is predominantly derogatory, in others hypocoristic, in others finally neutral. Within the same community, subgroups will tend to use -kuluk to state size, others as a manifestation of affection, others as a despising term. The "context" as we usually say may naturally come into play, but often with different values for the interlocutors.

What we have earlier called "logical meaning" is likely to be more stable than other factors, and hence is likely to be a basic part of sense. In fact, one usually observes good agreement among speakers on judgments of consequence, presupposition and the like.

7. It will be useful here to contrast logical systems and natural languages.
In a formal logical system, the restrictions on the interpretation of a given symbol are entirely determined by its syntactic possibilities of combination, which are specified a-priori. For one who uses a logical system very much, an element A may acquire an evocatum, in that the various types of interpretation may remain in his memory as a "feeling for the nature" of the possible referents of A. Examples of this can be found especially in the mathematician's practice. The notion of a function is more "felt" than analyzed by anyone having done some mathematical work. Another manifestation, on a different level, has to do with conjectures, "proofs" that appear later to be invalid, etc. But reliance on the pet evocatum never displaces the a-priori syntactic specifications, to which one returns in the case of difficulty.

In natural language, the use of signs and their possible combinations are not a-priori given to the language user, but acquired through practice with the language in experimental situations. Hence:

a/ The evocatum is primary, not the sense.

b/ Unless we can specify the situations of use (particularly in the experimental learning) we cannot reach the sense itself (if there is any) but only relationships between sense of various expressions, as evidenced by differences and similarities of uses in situation. (Bloomfield naturally expressed this idea long ago)

8. We find here the ultimate justification for distributional analysis, at least as a schema of a method, if not in actual linguistic practice. Only an examination of collocations could lead us to proper statements of meaning relations between expressions. Since the sense is what controls the use of these expressions, the meaning relations should be mirrored in differences and similarities of their distributions. This seems to be Harris's approach to the study of meaning.

But the distributional approach is hampered as follows. We need a criterion to accept or reject an utterance as evidence in our study.

If "grammaticality" is the criterion (supposing we can agree on how to use it) the analysis will, of necessity, make no difference between expressions having identical "syntactic" properties (e.g. black cat and young dog in English) because it will ignore the difference between expected and unexpected collocations (e.g. a young dog barks vs a black cat barks).

If acceptability to the native hearer is the criterion, it will be very difficult to control the "point of view" of the subject. He might accept a sentence with a "figurative" meaning, e.g. John is a fox, or reject a sentence on the basis of his own experience, e.g. Ahmed's tent was a palace. In both cases we may argue that his judgment was prompted by some connotation (in the sense defined above) of fox or tent or palace, and not by their sense.

Hence it may be that distributional analysis, (maybe complemented by statistical methods and factor analysis) will be especially useful for the study of connotations, or of whole evocata.

9. But we shall have to rely on some other means to attempt to isolate senses, understood as a restriction on the possible referents of expressions, or on the proper informative use of items. In this connection the previously mentioned properties of logical systems can be very useful. By their very nature logical systems are ill adapted to represent all of natural language semantics, but the sort of questions asked in logical semantics may help to isolate at least some necessary conditions imposed on interpretations by linguistic expressions. I must refer here to the work of Edward Keenan, first at the University of Pennsylvania, now at Cambridge. I understand from too scanty information that this is also the orientation of Irena Bellert's work.

Whether the socialized part of meaning can be exhausted by logical relations remains, after all I have said, a matter of empirical investigation. But it seems to me that at least two aspects escape this characterisation. One is the domain investigated by anthropologists under the heading of folk-taxonomies. While these can be represented and used within the logical framework, they seem to involve only trivial inclusion relations, and apparently are difficult to investigate logically. We have to rely on ethnographical work for our information.

The other area where logical analysis may be found lacking is the domain of the emotional reactions attached to elements of the language. They seem to involve value judgments which are best investigated and mapped by techniques like Osgood's. Consider the sentence He was wearing a loud tie. It appears that one important part of the message lies with the loading of the item loud. By itself, this item poses problems of interpretation, involving synesthesia among other phenomena. How a logical representation of loud would allow for this is a problem. Obviously, the collocation loud tie simplifies matters on this count, since it eliminates some possibilities of loud. But it in turn poses new problems. Are we to consider the value judgment on loud ties to be part of

sense (i.e. socialized part of evocatum)? I imagine we would have to, if a semantic differential investigation exhibits it as a constant of the subjects' reaction. The question now is how to incorporate this into our representation of loud tie. For there is a strong probability that the message intended be He was dressed provocatively, or the like.

10. We may now briefly consider the problems of notation. From the preceding it appears that a notation for a semantic taxonomy should be able a/ to characterize exactly the sense of an expression (that is in particular attribute the same representation to all synonymous expressions) b/ ideally, to allow for the interpretation of evocata usually found to belong with items and expressions.

It is also natural to expect that a semantic notation should provide for some link with lexicology, that is, enable the researcher to specify what kind of semantic structure a lexical item may have - as opposed to a more, or less, complex idea. This link with lexicology would become very important if we were then to try studying the processes by which a semantic construct receives a sound-patterned expression (if any).

Finally, a semantic notation should enable us to separate information carried by a semantic construct from praxis elements. I here call praxis the phenomena attending the transfer of a semantic construct from an individual to another. Reference is a case in point, which shall be discussed shortly; so also is the distribution of new and old information (touched upon by Chafe and Halliday, among others) in particular the type of message, whether statement, question, hypothesis, command, etc.

11. We may try to appreciate the value of various proposed notations according to these three criteria. Space here does not allow extensive examination, but I will briefly consider the notations offered by the "generative semanticists", by Tesniere, Chafe & Lamb, and the logical notation.

Generative semantics, as it has come to be known, is the result of pushing the deep structure base of a generative syntactic framework to its utmost abstraction. Its main drawback is that it essentially remains syntactic. It uses labeled ordered trees of the type usual in generative syntax. Three questions arise. The first one, namely, is it relevant to seek to generate a semantic structure (in the usual sense of generate) has been briefly hinted at by McCawley in a mathematical paper. The second is on the necessity of syntactically labeled modes in a purported semantic representation. These modes create difficulties, such as that sighted by Fodor. Finally, one may question the treatment given to identity of reference, which is one basic aspect of praxis. It is obvious that coreference cannot be represented on trees, and one has to introduce the special device of identity of indices.

Tesniere's dependency trees escape the second objection, and have never been subject to the first (I don't think Tesniere ever thought of generating his trees, and Hays' formalization uses well-formedness conditions, not rewrite rules.) The last objection remains, which is directed at all tree representations. In fact, reference as a specific phenomenon is all but ignored by Tesniere, whose units are lexical items. This aspect of his notation prevents him from attributing the same representation to synonymous expressions when necessary.

Chafe's notation provides such uniqueness of representation, I think. However, it has the basic defect of trees, and is of generative type: one has to start from what Chafe calls the verb to then expand it into a sentence. Also the treatment of lexical items is by ordered features.

Lamb's notation brings several interesting contributions. We note that his semons are not lexical items, but more elementary. They at least come close to realizing Hjelmslev's aim of isolating <u>figures of content</u>. Another interesting point is that they are postulated to assemble "spontaneously" that is, by virtue of

their intrinsic properties. We find here an analogy with chemical representation, which is worth pursuing, I do not know if Lamb's semon structures offer an adequate possibility of treating reference. The logical notation, in its usual form, offers only part of it.

12. It will be useful here to consider what we can conceive a semantic construct to be. From the continuum of a universe, our perception apparently isolates a number of items, and relations between them. I propose to consider this situation to be at the core of a semantic construct. A representation then has to include ways of specifying relations and items.

The items to be specified are of two kinds: individuals (or collections of them) and situations. Whereas the former are best thought of as specified by definite descriptions, the latter are of the same nature as what the whole semantic construct itself describes, which I call configuration.

Following Frege's suggestion, we could say that the referent of a sentence is its truth-value. But it seems to be more in keeping with the case of definite descriptions to say that the referent of a sentence is the collection of universes of discourse where it would be true, that is, where the configuration described by the sentence, considered as a characteristic property of universes, would be realized. (the only difference lies in the fact that in order to speak of the truth-value of a sentence, we need to specify a priori one universe, which we are not prepared to do.)

13. Following Frege again, we now say that an embedded sentence (nominalized) refers to the configuration described by the corresponding free sentence. This is to say that, whereas a free sentence can be thought of as a predicate taking universes as arguments, the corresponding embedded sentence is a name for the characteristic configuration (or for any universe containing it).

Similarly, the specification of an individual (or collection) utilizes properties of predicates on individuals. A definite description can be viewed as a composition of predicates (i.e. a complex predicate) which specifies an individual up to local uniqueness, whereas a non-definite description specifies only in part, and leaves some choice open for interpretation.

We thus see that the two main types of embedding recognized in syntactic taxonomies - namely relative clauses and nominalized clauses - are essentially linked with the question of specifying the two types of items between which relations hold.

14. The classical notation of logic does not provide for stating relations between configurations (except by logical constants) but it is not a very difficult matter to extend it to be able to do so. However, this extension makes for a very clumsy notation. I think the reason lies in the linear character of logical writing. The clearest, and in the end most compact way of representing complex networks of relations is to use graphs. Some nodes would not be labeled, and in the interpretation would be mapped on individuals (and collections) whereas the others would be labeled by relation names. This format has the advantage that coreference is automatically represented (whereas logical notation can achieve it only by quantifier binding). The labeling relation names may be simple or complex. It is naturally an aim of any semantic description to analyze any such relation into its simple elements, but pending evidence of its structure, a relation can be handled as an unanalyzable whole. This option, which is offered in most of the notations examined, may in fact reflect as aspect of actual language behaviour, especially in the learning stages, the later part of the process of acquisition of a lexical item being devoted to the understanding of its internal structure.

15. Another desirable property which appears to be present in such a notation is the "self-assembling property" already mentioned in connection with Lamb's semons. Each labeled node is found to be equipped with a specific number of branches (or actants, to follow Tesniere's terminology), each of them being of one of a few types. These specifications correspond to one kind of restrictions encountered in the syntactic description, e.g. those which exclude John ate a book to Mary or John is similar

from English.

Another type of restrictions, e.g. those felt in such utterances as John ate a book, has to do with cooccurrences of predicates of relations on the same individual. Restrictions of this second type are weaker and can be violated on purpose. The distinction of two kinds of well-formedness conditions seems to be useful in sorting out the ideas which cannot be conceived from those which simply are not usually conceived, but may be prompted by new situations, a new look at the world, or other novelties.

16. Our notation now appears very similar to a chemical notation, with ideas being molecules (or macromolecules, in the case of a whole speech). The analogy could be pushed further with many advantages, although it must break down at some point. Let me simply mention one aspect of it.

It appears from some exploratory work done by Hofmann that even ordered features (such as used by Chafe) are insufficient to represent lexical items. While some of them could be reduced to ordered features, it seems more satisfactory to consider them as graphs of the types mentioned above (although it may be the case that they are subject to certain restrictions, such as being planar, or not involving unlabeled nodes).

It thus appears that lexicalization of an idea involves taking as lumps some subgraphs of its representation. This is analogous with the chemical situation on two different levels:

a/ The naming of a complex molecule (which may be likened to the uttering of an idea) is simplified by naming frequently recurring radicals and their connections instead of stringing out the whole graph.

b/ The chemical activity of radicals very often leaves them as unchanged wholes, and many properties of the molecules are derivable from the radicals they contain. This reminds us of the hypothesis (or should I say "observation" ?) that the lexical stock of a language, together with the processes in which they are involved, channels the thinking activity of the speakers.

17. The chemical analogy breaks down when we consider the treatment of those aspects of meaning which logical or structural analysis leaves out, and which are revealed by techniques like Osgood's. (Unless we want to bring in Van der Waals forces or thermodynamic activity of hydrophobic and other strange radicals). It has been remarked earlier that the features isolated by the semantic differential essentially represent emotional reaction to lexical items or usual collocations such as idioms. These reactions, according to Osgood, can be mapped out in a special "space". (But this is not necessary: we could posit a single evaluation in terms of features). If such is the case, then these elements of "meaning" should be attached to lexical items in our representation, that is to subgraphs or radicals. We may think of them as coordinates of points in a space, loosely associated with regions of the semantic graph. There is the question of exactly how they contribute to meaning. In an attempt at evaluating the content of newspaper articles and propaganda texts, Osgood took them to be simply additive. This may be sufficient, but much research should be done on this point.

18. In conclusion, I would like to mention how such a semantic notation would relate to two ways of handling syntax.

Fillmore's case grammar takes one radical (a verb) to be primary, and posits for it a number of specific valences which are filled by noun phrases (English surface representatives of individuals together with their descriptions, or of subconfigurations). Let me mention in passing that a complex semantic graph is not necessarily exhausted by one such operation, and may have to be broken down into several subgraphs, related in specific ways. This together with discourse analysis falls in the domain of what I called <u>praxis</u>.

Harris's latest formulation of syntax (or grammar) isolates two types of operators. The first type, which he calls <u>Information</u>, or <u>Report</u>, is comprised of all operators stating relations between the basic nouns (extracted

from a basic vocabulary). Notice here that, apart from the fact that Harris does not deal separately with reference, most of the Information structure can be mapped on the semantic constructs here described (when stripped of their Osgoodian features). The second type, which Harris calls Morphophonemics is comprised of all operators modifying the shape of the Information constructs to yield the usual surface string structures. This corresponds to the processes I mentioned at the beginning, which are supposed to relate the structures described by the semantic taxonomy with those described by the syntactic taxonomy. One important divergence is the Morphophonemics operators are interspersed among Information operators. But in a dynamic view of the process of speaking, it is quite conceivable that the production of the utterance structure would be concomitant with the ideation of the semantic structure.

BIBLIOGRAPHY

BELLERT, I. 1971. Sets of implications as the interpretive component of a grammar. Paper presented at the meeting of the Canadian Linguistic Association, St. John's, Newfoundland.

BACK & HARMS, ed. 1968. Universals in Linguistic Theory New York, Holt

CHAFE, W. 1970. Meaning and the Structure of language Chicago, University of Chicago Press.

FILLMORE, C. 1968. The Case for case. In BACH & HARMS, 1968, pp. 1-88.

FODOR, J. 1970. Three reasons for not deriving "Kill" from "Cause to Die", Linguistic Inquiry I. 4.

FREGE, G. Über Sinn and Bedeutung translated in GEACH, P. Translations from the philosophical writings of G. Frege pp. 56-78.

HARRIS, Z. 1951. Structural Linguistics
Chicago, University of Chicago Press

HARRIS, Z. 1968. Mathematical Structures of Language New York, Wiley Interscience.

HARRIS, Z. 1970. The two systems of Language: Report and Paraphrase TDAP79 University of Pennsylvania, Philadelphia.

HJELMSLEV, L. 1961. Prolegomena to a theory of Language Madison, University of Wisconsin Press.

HOFMANN, Th. 1971. Comprehension and Concepts in Semantics paper to the Linguistic Circle of Ontario. Ottawa, Ont.

KEENAN, E. 1968. A Logical Base for English Ph.D. Dissertation, University of Pennsylvania, Philadelphia.

LAMB, S. 1966. Outline of Stratificational Grammar Washington, Georgetown University Press.

McCAWLEY, J. 1967. Concerning the base component of a transformation Grammar

McCAWLEY, J. 1968. The role of Semantics in a Grammar, in BACH & HARMS, ed. 1968, pp. 124-169.

McCAWLEY, J. 1970. Semantic Representation, in GARVIN, P., ed., Cognition: A Multiple view New York, Spartan Books.

MORRIS, C. 1932. Foundations of the Theory of Signs, in International Encyclopedia of Unified Science vol. 1, No. 3 Chicago, University of Chicago Press.

OSGOOD, C. 1953. Method and Theory in Experimental Psychology New York, Oxford University Press

OSGOOD, E. SUCI & TANNENBAUM, 1957. The Measurement of Meaning Urbana, University of Illinois Press.

TESNIERE, L. 1961, Elements de syntaxe structurale Paris, Klinksieck.

J. P. Paillet,
Carleton University,
Ottawa, Ont.

May 1971
No. 2 ii 1972

VIGILANT MEMORY IN SPEECH-INPUT SEGMENTATION AND ERROR-CORRECTION

Th. R. Hofmann

Speech perception can be divided into 3 logically distinct processes:

(1) the transduction of an acoustic signal into a digital representation,

(2) the conversion of this representation of sound into words (lexical entries) and syntactic relations,

and (3) decoding this syntactic formative string into meaning or comprehension.

Previous models of speech perception have dealt only with the first of these. We are concerned here with the 2nd. This conversion of sound into words is obviously necessary. It might not be problematic if speech were consistently supplied with boundary markers -- markers identifying the beginning and ends of words. A word thus delimited could be looked up in a dictionary: if found, it could be assigned its code meaning, and if not found, an error in transmission or decoding would be detected. Without a consistent, reliable, and explicit marking of boundaries, dictionary searching is impossible. Decoding of speech is apparently blocked for lack of the meaning of the coding units (words), and identification or correction of errors in transmission and decoding is impossible.

The nature of this problem has led to the design of an automaton called a vigilant memory which has a number of interesting properties. This device appears to be essential to this 2nd part of speech perception

Cahiers linguistiques d'Ottawa 2. 57 - 67

because it does not need explicit boundary markers. It now appears that research in the 1st part of speech perception has been sufficient for the tasks it need fulfill, for some time.

We shall first outline what a vigilant memory is and then show its applications as we refine its design. Finally we will sketch a hardware realization of it and speculate as to what it is in the larger context of computing systems, and what other applications for it may be.

A vigilant memory is a collection of autonomous memory cells connected in parallel. The basic structure of the vigilant memory is that its input is distributed as input to each cell, and the output of each cell is collected together to form the output of the vigilant memory. The number and arrangement of the cells is unimportant. The essential element of a vigilant memory is thus the vigilant memory cell.

Each memory cell has a key which is continuously compared with its input. This key contains a template or model which is compared against the input of the cell. When the key matches some portion of the input, the cell will "fire" or send a signal through its output. This firing indicates that the template contained in the key of that cell is contained in the input of the vigilant memory.

In a vigilant memory presented with a sequence of input data, for example, a sequence of the letters of written English sentences, this sequence will be distributed to each cell. If the lexicon of English words is contained in the keys of the vigilant cells, one word in each key, the cells will fire as their respective words are encountered in the input. The output of the vigilant memory will thus be a sequence of signals corresponding to which words are contained in its input.

Each cell of a vigilant memory does the following things:

a) compare its input against its key;

b) decide if these match or not;

c) if they match, it outputs a signal.

A vigilant memory is therefore a parallel-processing mechanism. Each cell is a processing device of an elementary nature. The vigilant memory contains an indefinite number of cells -- we speak of it containing 1 cell for each word in English -- thus we are considering, say, 10,000 parallel processors. It is clear that the overall behaviour of such a mechanism can be of a different nature than any existing automata. We argue that this difference is large -- as large as the difference between a punch-card sorter and an ordinary computer -- and that it is exactly this difference which is needed to duplicate or surpass the human capacity to extract words out of a continuous stretch of sound with interfering noises. We shall also recall some recent evidence that human linguistic perception proceeds in a similar manner, and propose that this model, the vigilant memory, is a model for all auditory perception.

To even consider a model with 10,000 parallel processors, a few feasibility requirements must be met. The amount and type of information processing done in the cells must be heavily restricted and the cells must be identical in construction. A vigilant memory is not conceivable unless its cells are identical to allow their mass production and random assembly. The processing done in each cell must be at a minimum to allow their cheap construction, small size and small power consumption. Both of these requirements are met. But a vigilant memory is still a very expensive proposition; one which cannot be undertaken without promise of a large benefit. This is also satisfied if it is beneficial (a) to understand and duplicate speech perception as done by human beings or (b) to build a machine of very unusual characteristics. A simulation on a present day computer demonstrates the promise of both of these.

Segmentation of an input sequence is accomplished in a vigilant memory in the following way. Recall the example above where an English text was input to the vigilant memory. Each cell has a key containing one of the words of English: whenever that sequence of letters appears in the input, the cell fires, sending a signal to the vigilant memory output. Hence,

whenever a sequence of letters is encountered, which happens to be a word of English, the appropriate cell will fire, and the vigilant memory will output an indication that a word has been encountered. This is not dependent on there being word-spaces (markers of boundaries) in the text; word-units are recognized on the basis of the proper sequence of letters being in the text. If all the boundary markers (spaces, punctuations) are removed from the text, as in the case of continuous speech, all the words will still be recognized.

There is a superficial drawback with this procedure, however. Encountering a word like manhood, 3 cells will fire; those having keys man, hood and manhood. This means that the output of the vigilant memory will have to be monitored on the basis of longest matching sequence; recognitions of short words to be discarded if they are contained in longer words which are also recognized.

To do this, information as to which word was found will have to be retained. Thus the signal which a vigilant cell sends to the vigilant memory output must identify the cell. The natural and most efficacious code to identify the cell is the contents of its key; the word or template which the cell is looking for. This will identify the cell as only one cell has that particular word. It is an effective address of the cell, because that cell and only that cell can be made to "fire" by that word.

The example we have been using is now revised to have an English text input to a vigilant memory containing the English lexicon. Regardless of the distribution of word spaces and other boundary markers, sequences of letters which are English words are output whenever they are found in the text, and a monitor compares these outputs, discarding those which are contained in longer words. Considering the case where the English text had all the blanks removed, a case similar to speech, we see that the vigilant memory plus monitor will be segmenting the text into the words it contains.

Actually, a monitor which only looks at inclusion of words in longer words is not sufficient. One hint of this arises when the blanks are removed from the English text. Spurious words appear from the abbutment of adjacent words. For example, picnic at will contain the word cat when the space is removed. These spurious words will not be contained in other words. The monitor must be more sophisticated than to use only a simple inclusion test.

Without justifying[1] it here, it seems that the monitor must incorporate a simple syntax of the language. It will use the syntax to select from among the words output from the vigilant memory.

Such a monitor can be constructed from a vigilant memory for syntactic patterns and a selection function to discard words which do not contribute to a likely parsing. This function must value highly a sequence of words

a) which do not overlap one another;

b) which form a possible syntactic structure;

c) whose degree of match (key to input) is high (large R_f, see below); and

d) which together account for all of phonetic material.

This order (a,b,c,d) reflects decreasing relative value of the criteria. The form of this function is not known, and needs empirical investigation on linguistic and psycholinguistic grounds.

The monitor will thus use the superficial syntax of English to select a sequence of words which forms an English sentence. To adequately segment a written English text, a syntax as well as a dictionary, is needed. This is surprising to no one who has studied the problems of speech insertion; the perception of a word-like sound is heavily influenced by the syntax of its environment. It seems that the superficial syntactic patterns can be accessed from a vigilant memory which stores syntactic patterns. There will thus be 2 vigilant memories, one for the lexicon and one for the syntax.

I assumed above that speech was already segmented into a string of sounds; that phonemes or phones are detected first, and then words are recognized in the output of that processor. This need not be the case; segmentation of continuous speech is done by a vigilant memory if the speech is first transduced into an ordinary set of distinctive features (voicing, nasality, ...)[2], and given that the keys of the lexical vigilant memory are encoded in the same notation, the continuous acoustic signal will automatically be chopped into lexical units by the lexical vigilant memory. From among these lexical units, the monitor will select just those which will make up possible sentences.

Speech, in the ideal, noiseless case, will be segmented into words and sentences by this tandem arrangement of vigilant memories. There is no need to chop speech first into any smaller units such as phonemes or syllables or segments in general. There not being any need for these sub-word segmentations, we doubt their existence in perception. We would also note that such segmentations suffer either from needing considerable context or from needing to be recoded. It is sufficient to transduce an acoustic signal into a vector as a function of time in a n-dimensional space (when the dimensions correspond to the distinctive features[3]) and use a vigilant memory. Segments such as phonemes or syllables are apparently units of articulation if they are anything other than artifacts of linguistic analysis.

To consider how error-correction is done by a vigilant memory, let us return to the example of a written English text. The vigilant cell was described as firing only if its key was completely matched. If instead, we design it to fire if the degree of match is over a certain threshold, then it will fire and send its identifying signal (the word as it appears in the lexicon) if its key is sufficiently similar to that which was input to the vigilant memory. We can then take the English text of our example and mutilate some of the letters. Inputted with this mutilated text, the vigilant memory containing the English lexicon will output only "good" English words matched to a degree greater than the threshold for matching. The monitoring vigilant memory will then select from these words sequences which make

possible English sentences. An unsegmented text with noise is input and English sentences composed of English words are output.

This is superficially a decrease of entropy, but it is based on the redundancy in the lexicon (only certain sequences of letters are words) and on the redundancy in the syntax (only certain sequences of words are sentences). With very little reflection, it is clear that any method of speech insertion (speech perception) or of print-reading which overcomes the noise and errors inherent in speech and writing must utilize the redundancy in the lexicon and syntax of the language. We here propose a method by which these redundancies can be utilized. There is, of course, a cost for doing this. Texts with enough mutilation will occasionally contain, when put through this system, a sentence which is syntactically and lexically correct, but different from the original sentence in the text before mutilation. This is an inescapable result of utilizing syntactic redundancy, and is not uncommon in human perception. It can be lowered by incorporating semantic decoding, the 3rd part of perception, but I don't believe it can ever be totally removed.

The essence of a vigilant memory, the vigilant cell, can now be described in more detail. We assume here that the input to the vigilant memory has been converted to binary elements. (This allows a much simpler construction of cells). The key of a cell contains a pattern of bits representing the template which will fire that cell. Bits are grouped together (in the memory input and in the keys of cells) into letters or bytes, there being 1 bit for each distinctive feature in the case of speech. When 1 byte is input to a cell, it is compared with each byte in the key and a similarity score (S_i) for each byte i is computed (the product of the input byte and the key byte under comparison). A running score (R_i) is computed from (n to 1):

$$R_n := S_n + R_{n-1}$$

$$R_1 := S_1$$

This is the comparison of input against key. The decision based on a threshold of response (θ, expressed as a percentage) is:

$$\text{if} \quad R_f \geq \frac{\theta.f.B}{100} \text{ , the cell "fires",}$$

where f is the total number of bytes in the key and B is the number of bits in a byte. Lastly, "firing" is simply outputting the key, together with any other information which has been stored in the cell (the lexical class or "part of speech" is needed by the monitor) and R_f needed by the monitor.

Clearly, this logic is not extensive and can be wired in. The key and other information stored must not be wired in if the vigilant memory is to be modifiable. It will be useful to keep the threshold (θ) of response open to manipulation from outside so that it can be lowered in response to high noise conditions. B (bits/byte) is a design factor for the vigilant memory and hence can be wired in. The length of the template in bytes, f, need be computed only once, when a template is read into a cell. It will be most economically computed outside the vigilant memory and read into a cell along with the template.

The cell must also be given a supply of power, which can be done by a bias between the input and the output. Small variation in the voltage of this power supply could be used to control the θ for all the cells.

I have not made explicit the mechanism of firing because the vigilant memory must be constructed so as to disallow 2 cells from firing at the same instant. Some sort of testing the output to see if it is being used must occur to delay a firing if some other cell is firing. The method of reading a new word into the vigilant memory is also not described because there are several methods which can be used.

Mr. Leo Mes of the Computing Centre of the University of Ottawa has made a simulation of a vigilant memory on our IBM 360/65. Persons interested in it should contact him directly. This simulation has been used only for written language, and behaves totally as expected[4]. His simulation takes a few shortcuts and handles only a small dictionary, due to the enormity of simulating so much parallel processing on a sequential machine.

It may be noted that no machine planned is significantly non-sequential when compared with a vigilant memory. A vigilant memory is like 10,000 ants, whose behaviour en-masse is significantly different than 1 ant, or even 64, no matter how fast the lone ant is. In view of the speed-of-light limitation on memory utilization, it seems likely that elementary processing will be generally allocated to memory elements whenever it is at at all useful to do so. For the recognition task, where all of the input must be compared with everything stored in memory, it is clearly more efficient to distribute the comparison task to the memory cells.

Independent work by R. Warren at University of Wisconsin has given strong support to the vigilant memory as a model of word perception. Noise which covers up a removal of one or several phonemes of a word is not heard as masking. Rather, the parts removed are perceived quite clearly. This phenomenon, called "phonemic restoration", would happen with a vigilant memory presented with the same input. The cell whose key contained the word would output that word even though some portion of it was missing from the input.

Another application of the vigilant memory is in general auditory perception, needing only transduction of acoustic energy into an adequate digital representation. As mentioned above, a lexical vigilant memory will make a print-reader perform as well as if not better than a human being. Hand-writing recognition is a natural application where lexical and syntactic redundancy must be exploited. The vigilant memory will be

useful wherever a sequential signal is to be extracted from noise if there is considerable redundancy of a lexical or syntactic variety (i.e. where only certain patterns out of a large number are possible). Visual perception of objects would be a case of this except that there seems to be no natural way of sequencing the significant aspects of a 2-dimensional data-field.

Applications are of 4 general types; the 2 discussed above are (1) distribution of processing to overcome speed of light limitations and (2) extraction of signal from noisy environment by the use of the redundancy in the lexicon. A 3rd type of application derives from its segmenting properties. Military codes which cannot be segmented without a codebook (the lexicon and syntax) would seem additionally resiliant to being broken. The 4th type of application allows the retrieval of entries from an unstructured file of unlimited size by any of several modes of naming. This is too long to discuss here, but an example is a large card-catalogue where a card can be found by author, date and publisher; title and publisher; title and author; or any combination which makes the card sought unique -- including combinations of approximations, like author's surname, approximate title, and date.

NOTES

1. Justification may be found in Hofmann, 1970.

2. As, for example, in Chomsky and Halle, 1969.

3. NB that there is no need for the various distinctive features to be in phase. The transduction of nasality may well lag behind the transduction of voicing, for example. However, the coding in the keys to the vigilant cells must have the same phasing between features as appear in the auditory transduction. This is explored in greater detail, and with regard to speech production in Hofmann, 1970.

4. This simulation taught us one thing, which we should have expected. If the vivilant memory contains an incorrect form of a word, differing only slightly from what it should be, it is recognized in all the places where the correct form would be recognized. This seems rather special; the system overcomes mistakes in the input, and mistakes in the lexicon (noise in transmission and in the receiver's code book). But this is little different from what often happens in a child's learning of a language; even though he has mislearned a word and has the wrong pronunciation, he still hears the word in the places he ought to hear it. There is almost no way he can discover the mistake except by someone else noticing that he consistently pronounces it incorrectly and telling him so. A mistake in the lexicon stored in a vigilant memory has no effect except that perception is more susceptible to noise degradation.

REFERENCES

Chomsky and Halle. The Sound Pattern of English, 1969, Harper and Row.

Hofmann, Th. R. A Model for Linguistic Perception, 1970, unpublished.

Hofmann, Th. R. "Lexical redundancy in speech perception: Vigilant memory", 7th International Congress of Phonetic Sciences, 1971.

Mes, L. "Simulation of Vigilant Memories", 1970, unpublished.

Warren, R. "Perceptual Restoration of missing speech sounds", 1970, Science 167. 392-3.

Th. R. Hofmann,
Linguistics,
University of Ottawa,
K1N 6N5.

June 1971

THE MONTREAL MT PROTOTYPE[1]

R.I. Kittredge

In a recent demonstration at the Université de Montréal, English sentences covering a wide variety of syntactic types have been successfully translated into acceptable French by computer. Sentences composed using the thousand most frequent English words are entered by an ordinary teletype into the university's CDC 6400 computer which implements a series of transformational grammars and dictionary look-up procedures. Translated output is returned after several seconds delay by means of the same teletype, along with details of certain analysis, transfer, and generation phases. Similar demonstrations using teletypes in Sherbrooke, Ottawa and St. John's have provided translations of sentences by long-distance telephone hook-up to the Montreal computer.

The limited success of this machine translation prototype must be described within the perspective of past attempts and persistent problems in the development of an adequate theory of language which would reduce the problem to the technological level. Recent advances in transformational theory have made it possible to relate the "deep" or semantic structures of languages rather than their surface structures. Since its inception in 1965, therefore, the Montreal project has attempted to pass from English to French surface structures by means of deep structures. Such a pivot language (*langage pivot*) was already in use by the group at Grenoble for Russian-French translation. In this approach,

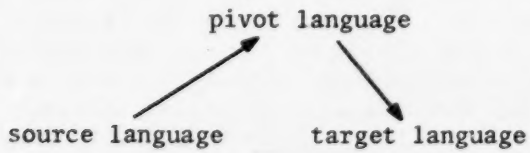


FIGURE 1

structural rules have the effect of converting sequences of words in the source language into an abstract representation in the pivot lan-

Cahiers linguistiques d'Ottawa 2. 69 - 81

guage, from which another set of rules produce a sequence of words of the target language (see fig. 1 above).

The difficulties in using a pivot language are largely practical. When a single tree structure is to serve as the representation of both a French sentence and the corresponding English one, it is necessary to posit abstract lexical entities which are realized differently in the two languages. A more immediate consideration has to do with the co-ordination of work in developing an analysis grammar for the source language and a synthesis grammar for the target language. The work is made as independent as possible when the two grammars are separated by a distinct transfer stage which makes lexical substitutions and small structural adjustments. The strategy taken by the Montreal group can then be represented (see fig. 2) as the passage from English to "normalized" English followed by transfer to normalized French, followed by synthesis (generation) of French.

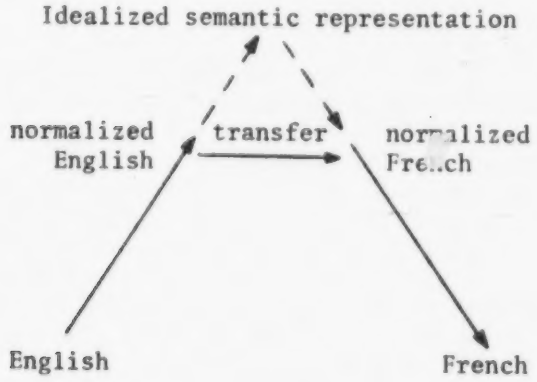


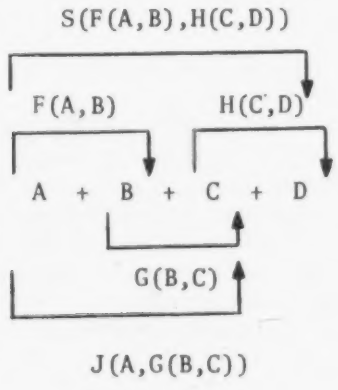
FIGURE 2

A further advantage of this procedure is that the two language grammars are more readily usable when paired with other languages. In the absence of a complete theory of semantic universals, the choice of a pivot language is in practice language-pair-specific. This is not necessarily the case for the passage through normalized structures. By replacing only dictionary rules (some of which will depend on structural properties) in the transfer stage one could match the English analysis half to a Russian synthesis half.

2. Q-systems and transformational grammar

The POLYGRAM translation program in its present version consists of twenty-one consecutively-executed grammars, each written in the Q-system formalism.[2] In simplified terms, a Q-system is a set of rules, each of which rewrites a sequence of trees. Rules may contain variables which stand for labels, trees, or embedded sequences of trees. Rules may have complex conditions on them involving the inclusion of one tree or tree variable in another.

The reading and execution programs cause a Q-system grammar to operate on an input sequence of trees roughly as follows. All possible sequences of rules of the grammar are applied to each substring of the input string or to strings which result from application of rules to such substrings. The output from the grammar is the resultant of the longest derivation(s) through the rules. A simple tree-building example is given in fig. 3 below.



(1) A+B == F(A,B)
(2) B+C == G(B,C)
(3) C+D == H(C,D)
(4) A+G(X*) == J(A,G(X*))
(5) F(U*)+H(V*) == S(F(U*),H(V*))

FIGURE 3

The symbols U*, V* and X* are variables for embedded strings of trees. As can be seem, non-embedded trees are separated by the plus sign from each other. Embedded trees are separated by commas. The input string A+B+C+D under-goes the operation of rules (1), (3), (5) as well as the sequence (2), (4). A precedence mechanism, however, chooses the first sequence over the

second since it includes as its resultant more of the input string than the second rule sequence. Thus for the Q-system consisting of rules (1)-(5), the output is the sequence consisting of the single tree:

S(F(A,B),H(C,D))

For a grammar consisting of only the rules (1)-(4), however, two resultants would be given since neither resultant consists of trees which include the trees of the other resultant. Thus there are the two output strings:

J(A,G(B,C))+D

and

F(A,B)+H(C,D)

For a grammar containing the rules (1)-(5) plus the additional rule (6) J(U*)+D=S(J(U*),D), the output would be the two structures:

S(J(A,G(B,C)),D)

S(F(A,B),H(C,D))

Such multiple output occurs in the syntactic analysis grammar of English. A sentence which is structurally ambiguous may have two or more such rule paths and hence lead to multiple structural interpretations as in this last example. Each such structure is then passed on through the subsequent grammars, giving rise to the same number of French sentences as final output.

The grammars used for analysis function much like the example of fig. 3, i.e., their rules are highly interactive (though unordered) and tend to produce a single complex tree out of simpler trees. (For the synthesis grammars the opposite is the case.) For the dictionary phases, most rules simply replace a label (degenerate tree) by a simple tree, as for example:

BANANA == N(BANANA,/,CONCR).

The twenty-one Q-system grammars which make up the POLYGRAM translation program are executed in sequence. That is, input to the first grammar is an English sentence and the output of the n^{th} grammar serves as input to the $n+1^{th}$ grammar ($1 \leq n \leq 20$). Output of the twenty-first grammar is normally a French sentence. In terms of function,

this sequence can be divided into seven major consecutive sections: (a) recognition of constants (e.g., prepositions, conjunctions, irregular past, participal and plural forms) idioms which have no substitution positions are recognized here also. (b) decomposition of words not recognized by preceding sections into letters for recognition of important prefixes and inflectional suffixes. This is followed by recomposition and restoration of the base to the uninflected form. (c) dictionary for uninflected forms (essentially all nouns, verbs, adjectives are identified and assigned syntactic/semantic features here). (d) structural analysis of English using the syntactic categories provided by the preceding phases. (e) transfer stage: replacement of English lexical items by French in the tree structure, (f) generation of French surface structure and (g) French morpho-graphemics (including conjugation of all verbs, elision, etc.).

In stages (d) and (f) the Q-system rules often function as transformational rules do. For example, in the English analysis section, the rule:

```
IT+T(A*)+BE+NP(U*)+REL == NP(U*,STRESS)
```

is recognizable as one which converts certain cleft sentences (it-extractions) into normal sentence form while preserving a feature of stress on the topicalized noun phrase. Thus in processing the sentence: *She said it was John who came late*, the structure is normalized to one corresponding to: *She said John came late* where the feature of stress within the list of features for *John* is preserved through the transfer stage so that an embedded cleft sentence may be produced in French. The motivation for carrying out this regularization of structure is clear when one considers the problems of inducing an ordering (by means of label changing) for the syntactic recognition rules.

The flexibility of the Q-systems comes in the fact that it is quite easy to modify the grammar by changing a single rule. The reading and execution programs are not affected since they are designed to interpret and execute an arbitrary Q-system grammar. These changes can be carried out by instructing an up-date program through the teletype terminal. Changes in grammars (including dictionaries) as well as tests of sentences for translation can therefore be

executed from any teletype by placing a long distance call to the Montreal computer's system TELUM.

3. The morphological phases (sections a, b, c)

Extensive grammars for the recognition of English morphology have been developed by using a feature that permits the decomposition of a word into individual characters. Such an approach has eliminated the necessity of having a full-form dictionary, since rules can be written (within the Q-systems) for recognition of important prefixes and the set of suffixes *-s*, *-ed*, *-ing*, *-ly*, *-er*, *-est*. Prior to this stage, constants (e.g. prepositions, conjunctions, pronouns, modals, etc.) have been recognized and assigned to grammatical categories or given temporary labels to block the decomposition process on these forms. Similarly, irregular verb forms and irregular plurals have been identified by consulting a virtually exhaustive listing. Since these forms are immediately given category markers, they are unaffected by the suffix-splitting phase which splits only simple labels. The splitting phase then separates prefixes from both regular and irregular forms, and suffixes from regular ones. After affixes have been removed in the splitting phase, a complex set of rules adjusts the spelling of the root to that of the uninflected form (e.g. *flie + s becomes fly + s*). Dictionary search follows and for forms such as *fly* all possible lexical interpretations, N(FLY,...), V(FLY,...), etc., are recorded for that position of the input string. The interpretation of the suffix *-s* can then be made dependent in the following grammars on the category markers found, by rules such as:

N(U*)+s == N(U*,PL)

V(U*)+s == T(PRS3S)+V(U*)

In the case of *flies*, both rules apply and both nominal and verbal interpretations are available for subsequent rules. It is, of course, necessary to search the dictionary for the full form as well as the split form. Entries such as *trousers* will be split into *trouser+s*, but since *trouser* is not listed in the dictionary, the program has the effect of giving the entry for *trousers* which has been looked up at the same time.

Dictionary rules assign most words to one or

more grammatical categories by rewriting the word as the left-most branch of a tree dominated by the appropriate category label. At the same time certain syntacto-semantic features are listed as remaining branches. Some sample listings from the open dictionary classes (nouns, verbs, adjectives) are as follows:

```
          OIL == N(OIL,/,CONCR,MSS).

LOVE == ZV(LOVE,/,1(HUM),2(HUM,CONCR,ABST),
                  STAT).

          TRUE == ADJ(TRUE,/,S)
```

Words not belonging to the open classes, essentially transformational constants, have been recognized by rules in the initial phase and have been assigned category labels but without features. Among these constants are included prepositions, conjunctions, quantifiers and articles. One additional class recognized in the initial phase is that of so-called "circumstantials", mainly those adverbials not derivable by general rules from adjectives.

4. Syntactic recognition phase (section d)

After identification of constants and irregular forms, followed by dictionary look-up, the output of the morphological phase is passed into the first syntactic recognition grammar which builds a preliminary NP-dominated tree by recognizing pre-nominal modifiers and assigning them to a standard position in the tree according to the following schema:

```
NP(<noun><determiners><adjectives>/
        <noun features>).
```

The two strings <determiners> and <adjectives> may be empty or may be built up in a right-branching fashion from conjunctions of DET-dominated or ADJ-dominated strings. Certain local modifiers are converted into the features on their head elements. Comparative forms of adjectives, for examples, are recognized by the two following rules:

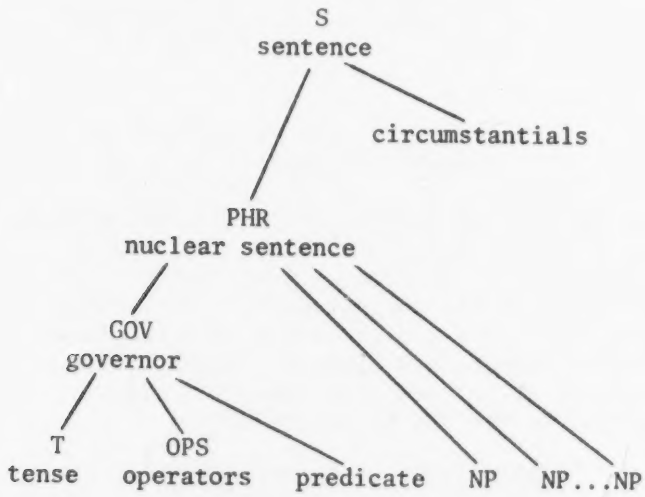
```
MORE+ADJ(U*) == ADJ(U*,COMP).

ADJ(U*)+ER == ADJ(U*,COMP).
```

Similarly, superlative forms and pre-adjectival *very* are converted to adjective features.

Following preliminary NP buildup, the second syntactic grammar carries out the process of sentence recognition. Although the rules are unordered by the system, an ordering is effectively induced by the changing of tree labels as more complex constituents are built up. The initial step is the recognition of the governor or predicate which carries the tense. This may be a verb with auxiliary, or the *be* copula with adjective, classifier noun, or circumstantial. The governor constituent then, dominated by GOV, consists of three parts in the canonical order: GOV(T(A*), OPS(U*), <pred>) where <pred> is of the form V(V*), ADJ(V*), NP(V*) or CIRC(V*).

The rules which recognize the canonical order of sentence elements depend on the basic string property of sentence being: $Noun_1$ + Aux + Verb + $Noun_2$ + $Prep_1$ + $Noun_3$ + ... The nuclear sentence is built up by recognizing a constituent noun phrase (NP) preceding the Aux+Verb element (GOV) plus any following noun group or preposition+noun group. Thus, in terms of a predicate/argument view, the argument NP's are recognized and grouped with the predicate one at a time. Circumstantials which interrupt or adjoin the sentential nuclear string are incorporated into a sentential tree by adding them under the sentential label S as a branch on the same level as the nuclear sentence PHR. This gives an overall representation of the sentence as follows:



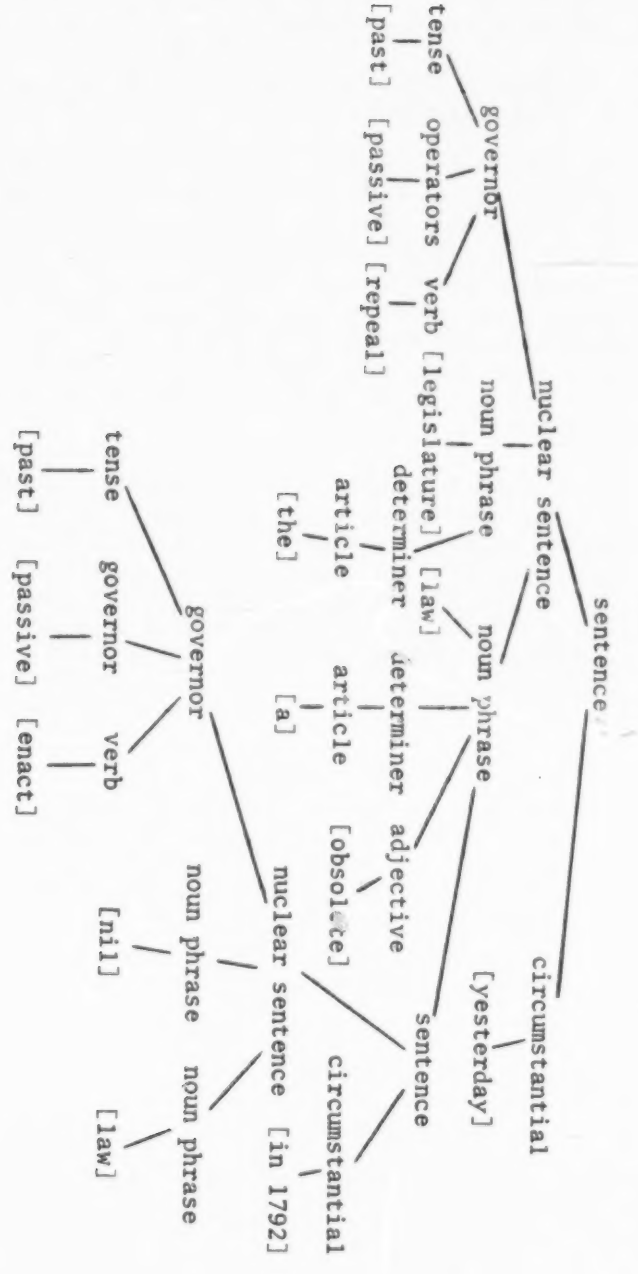
When any constituent (sentence, NP, adjective,

circumstantial) is conjoined to another of the same category with *and*, *or* or *but*, the structure of the conjoined pair is:

<label>(<conjunction>,<constituent$_1$>,
<constituent$_2$>,/,<common features>)

For parts of sentences which interrupt the canonical order, special rules must be given. Thus passive forms, relative clauses, nominalizations, etc. must be recognized by using the transformational trace (e.g. *be...-en*) and the grammatical rules reconstitute the canonical form with the addition of the information (e.g. PSV under OPS) that triggers the generation of the corresponding non-canonical form in French.

A complete description of the normalized form for sentences is usually given by a set of Backus normal statements. A single example here will perhaps give a clearer picture. The sentence *An obsolete law which was enacted in 1792 was repealed by the legislature yesterday* has the following tree structure (omitting details)



In noun phrases with relative clauses, the relative clause is reconstructed as a full sentence with the relativized noun phrase repeated in it. For passive sentences, the agent noun phrase occupes the position of logical subject by virtue of a set of rules which function when the PSV (passive) marker is present in the governor.

When no agent is present (e,g. *the law was enacted*) the logical subject position is filled by a dummy: *nil*.

5. Transfer phase (section e)

During the transfer phase, the tree output of the English syntax is segmented in such a way that branching information is preserved, but each English lexeme is put at the highest level. Essentially, for the Q-system purposes, each sentential tree becomes a sequence of trees. This is necessary so that a Q-system grammar can be written which contains simple lexical transfer rules. Many rules are of the simple replacement type: BOOK==LIVRE. They are often made dependent on their syntactic environment (as represented in the tree structure). Thus it is possible to have KNOW==SAVOIR under the condition that the second (object) noun phrase consists of a sentence (or under a few other syntactically specifiable conditions). Under remaining conditions the rule KNOW==CONNAITRE will apply.

When dictionary transfer rules have finished applying, the tree is recomposed (in a subsequent Q-grammar) to give a normalized structure for the French sentence. Besides lexical transfer, however, certain small changes in category labels and tense markers have been carried out. When the past tense marker is found with the BE marker (for the progressive *be...-ing*) a rule produces the marker for imparfait in French. The output of the transfer stage, then, produces a tree which has essentially the same structure as the English normalized structure tree. The limitations of structural transfer are obvious for many translation problems. Certain correspondences can be expressed structurally with the help of features (e.g. *stative*, etc. for verbs, *group*, *body*, etc. for nouns) which identify important syntactic/semantic word classes. In the absence of a comprehensive semantic theory, the limitations of structural transfer will have to be accepted as the best we can do.[3]

6. Generation of French surface structures (section f)

Each recomposed tree-structure which enters the French generation grammar presumably corresponds to a single interpretation (non-ambiguous) of an English sentence. Although many French paraphrases could be generated from this structure,

the rules for French generation produce only a single sentence by testing markers in various components of the sentence. Sentence conjunction, question or passive markers trigger rules which affect the global unravelling of the tree. Relative clause structures undergo a rule which effectively permutes the duplicated noun phrase and pronominalizes it to produce the surface relative *qui*, etc. Rules which test object noun phrases for pronouns perform permutation of these pronouns to the position before the verb. Other "local" rules write *très* or *plus* before adjectives or certain circumstantials on the basis of markers found in the ADJ or CIRC tree.

What results from the structural manipulations is a string of words with additional markers (for gender agreement, for example) to be used as input to a multi-stage morphology program (section g) which essentially generates the proper verb form and carries out gender and number agreement on adjectives. Other temporary markers which have served in the derivational processes are erased at the same time.

7. Prospects and limitations

The Montreal MT prototype has a certain flexibility which permits rapid implementation of new developments in transformational grammar. It is easy to add or remove a grammar from the entire sequence. Likewise it is easy to insert or delete a single rule or group of rules, generally without requiring serious adjustments in rules that remain. Given this flexibility, it is possible to foresee a rapid expansion of the English lexicon and transfer dictionary well beyond their current 1000-entry size. Grammatical segments may also be expanded to include most of the well-established facts about the behavior of English and French syntax. Within a very few years, however, the limitations of structural transfer will become the main hindrance to improvement of quality, so that semantic theory and especially descriptions of discourse structure must be developed apace if high-quality automatic translation for extended texts is to be achieved.

NOTES

1. This paper describes the translation system of the Groupe de recherches pour la traduction automatique à l'Université de Montréal. A full

listing of the component grammars and dictionaries is available in TAUM 71 a report published by the group in January, 1971. At the time of publication, the project's principal members were: Linda Anderson, Alain Colmerauer, Jules Dansereau, Brian Harris, Richard Kittredge, Guy Poulin, Gilles Stewart, François Stehlin, and Michel Van Caneghem. Copies of the report in microfiche and spiral-bound paper are available from project secretary, Louise Valiquette, T.A.U.M., Université de Montréal, Case Postale 6128, Montréal (101), Qué.

2. A fuller description of the Q-system, designed by Alain Colmerauer, is available in the TAUM 71 report described above.

3. Since the implementation of the version described here, in February 1971, certain proposals for semantic representation and disambiguation have been made by R. Hofmann and others. Some of these are being developed as an additional phase following the English syntactic analysis phase.

Richard I. Kittredge
T.A.U.M.
Université de Montréal
Case Postale 6128
Montréal (101), Qué.

September 1971.

UNIVERSAL QUANTIFIERS AND ENTAILMENT

David Lightfoot

In this paper I point out a number of differences in the syntax and semantics of *any* and *all*, which I think have not been mentioned in the literature; I am particularly concerned here with their occurrence in conditional and reason clauses. I also call attention to a number of differences mentioned by Zeno Vendler in his excellent article "Each and Every, Any and All". I propose an underlying structure which enables us to characterise many of these differences and at least gives us a good framework for talking about some of the other problems.

Quine seems to believe that logicians have developed a system which is pretty well able to handle the complexities of quantification and he rejoices that the technical notation developed is simple and more or less complete. But he throws up his hands at the challenge of giving a rational account for *all*, *any*, *every*, etc. He says[3]:

"Quantification cuts across the vernacular use of *all*, *every*, *any* and also *some*, *a certain*, etc... in such a fashion as to clear away the baffling tangle of ambiguities and obscurities... The device of quantification subjects this level of discourse, for the first time, to a clear and general algorithm".

Unfortunately this gets us nowhere, but it illustrates an important point, namely that the task of the logician, essentially a prescriptive one, is very different from that of the linguist or of the natural logician[4]. The linguist, if you will, seeks to relate the content of sentences, or their semantic representation, to their surface form, whereas the logician is concerned with the relations of implication, presupposition, etc. between the content of different sentences. Whether we adopt the position of Generative Semantics and endeavour to generate appropriate strings containing *all* and *any* by means of constraints

Cahiers linguistiques d'Ottawa 2. 83 - 96

stated in terms of the underlying semantic representation, or whether we seek to give semantic interpretations to sentences generated only with syntactic constraints, as linguists we cannot simply use what Vendler calls "the straitjacket prescribed by the theory of quantification", but we must be able to characterise various distinctions in usage, addressing ourselves to problems of the type of reference, existential import and the lawlike form of general propositions.

With these considerations in mind, I wish first to argue for the existence of an abstract verb *entail*, which will give us a framework for discussing some major problems. I use the term "abstract verb" in roughly the sense of Robin Lakoff in her "Abstract Syntax and Latin Complementation"[5]. I propose this abstract verb as a source for causal, conditional and final clauses.

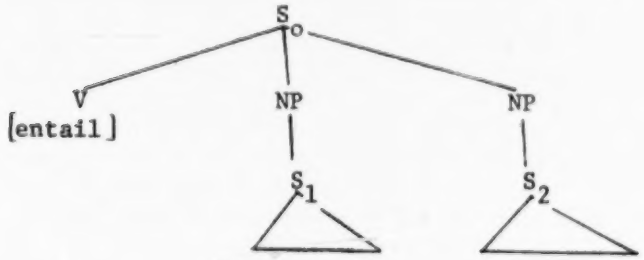


FIGURE 1

The sentential subject of *entail*, i.e. S_1 in Figure 1, may be realised either as an *if* clause or as a *because* clause. The difference is that if S_1 is presupposed to be true and actual a *because* clause will be generated; if there is no such existential presupposition an open *if* clause will be the result. Let me give some evidence for this claim that *if* and *because* clauses should have a similar underlying structure.

Firstly both a *because* clause and *if* clause may constitute a reasonable answer to a question introduced by *why* or *for what reason*, but *if* may be replied only if the questioner did not presuppose the actuality of the proposition.

(1) Why did he vote for Trudeau?
  (a) because he saw a ghost
  (b) *if he saw a ghost

(2) Why would he have voted for Trudeau?
(a) because he saw a ghost
(b) if he saw a ghost
(c) if he had seen a ghost

In order to defeat Stanfield is also a reasonable response to either of these questions, regardless of the presupposed truth value of his voting for Trudeau. More of this in a moment. No other clause type may be used as a response to *why...?*

(3) Why did he vote for Trudeau?
(a) *when he saw a ghost
(b) *who saw a ghost
(c) *until he saw a ghost
(d) *where he saw a ghost
(e) *that he saw a ghost
(f) *although he saw a ghost
(g) *so that as result Stanfield was beaten

(2) is not absolutely clear, because it is possibly presupposed that he did in fact vote for Trudeau. That is, the *would* might be the inductive *would* rather than the potential. To make it clearer, but still not absolutely clear, take (4) *Why would anyone vote for Bourassa in tomorrow's election?* The best reply is something of the form (4a) *if they thought he would treat the English as he treats his wife, people would vote for Bourassa.* (4b) *because they think he would treat the English as he treats his wife* is a less good reply, because it contains additional presuppositions not contained in the original question, namely that people will indeed vote for Bourassa. This becomes clear if one completes the answer referring back to the question; (4c) *because they think he would treat the English as he treats his wife, people will vote for Bourassa* but (4d) **because they think he would treat the English as he treats his wife, people would vote for Bourassa.* If a subject complement to *entail* is not presupposed to be true and is not realised as an *if* clause, the main verb will be potential, but not otherwise.

(5) The moon's being made of Leicestershire cheese (because it is true) causes him to fly to Hawaii

(6) The moon's being made of Leicestershire cheese (if it is true) would cause him to fly to Hawaii

(7) *The moon's being made of Leicestershire cheese (if it is true) causes him to fly to Hawaii

(8) The idea that Roy is from Sacramento (if true) would entail that he is a Reagan Republican

(9) *The idea that Roy is from Sacramento (if true) entails that he is a Reagan Republican

The relationship between a *because* clause and its main clause may be as indirect as that between an *if* clause and its apodosis. (10) *If she went to town yesterday, the sun was shining* and (11) *Because she went to town yesterday the sun was shining* are equally good or equally bad and may be uttered only in the belief that she only goes to town when the sun is shining and that she goes whenever the sun shines. The sentences differ only insofar as (10) does not presuppose that she did in fact go to town yesterday. Thus compare (12) *If she went to town yesterday, the moon is made of green cheese* and (13) *Because she went to town yesterday, the moon is made of green cheese.* (13) is very odd and unacceptable for the vast majority of English speakers, who have been brought up to believe that the moon is made of something other than green cheese. Thus it is that sentences with totally bizarre main clauses are fine if prefaced with an *if* clause, which does not require that they presuppose the truth of the antecedent or, therefore, of the consequent.

(14) If she went to town yesterday I'll eat my hat

(15) ??Because she went to town yesterday I'll eat my hat

(15) is, of course, acceptable but only in a completely literal sense and is therefore very strange, whereas (14) does not strike us as extraordinary, because it does not commit us to the bizarre compulsion of eating our headgear. In a sentence like (14) one might almost be able to say that the *if* clause is presupposed to be untrue, and similarly with sentences like

(16) If you're so smart, why aren't you rich?

(17) If Nixon is such an idiot, how does he manage to continue the war in the face of all this opposition?

But the very point of sentences of this form is that they pretend to leave open the possibility that you are smart or that Nixon is such an idiot, as opposed to sentences of the form of (18) *If Nixon were such an idiot, how would he be able to continue the war*?, which closes the possibility of Nixon being such an idiot.

As further evidence for the presupposed truth values we have suggested, notice the following differences in possible continuations of (12) and (13).

(12a) If she went to town yesterday the moon is made of green cheese;
but it isn't
but she didn't

(13a) Because she went to town yesterday the moon is made of green cheese;
*but she didn't
*but it isn't

Our analysis captures another interesting phenomenon. *She is as dumb as she is* and *is she as dumb as she is*? strike one as redundant or tautological, but sentences of this form may be used quite appropriately under a factive predicate, but not under a non-factive or a counterfactive predicate[6].

(19) Bill knows Mary is as dumb as she is
Bill acknowledges that Mary is as dumb as she is
*Bill thinks Mary is as dumb as she is
*Bill believes that Mary is as dumb as she is
That Mary is as dumb as she is, is surprising
That Mary is as dumb as she is, is horrifying
*Whether Mary is as dumb as she is is a mystery
*Mary pretends to be as dumb as she is

With our analysis of open conditions as non-factive, *because* clauses as factive and hypothetical conditions as counterfactive,

we can account for (20)-(22) simply with the generalisation I mentioned, that the non-tautological *as she is* forms are found only in factive environments, i.e. in *because* clauses but not in open or hypothetical conditions.

(20) Because she is as dumb as she is, I'm going home

(21) *If she is as dumb as she is, I'm going home

(22) *If she were as dumb as she is, I would be at home

Similarly our analysis would predict (23)-(25).

(23) He would have done it if it had been ten times harder than it was

(24) *He would have done it if it had not been ten times harder than it was

(25) He would have done it if it had been ten times harder than he expected

The framework I am proposing enables us to capture some facts pointed out about counterfactual conditions by Nelson Goodman in his classic *Fact, Fiction and Forecast*[7]. Counterfactual conditions make a definite presupposition about the truth value of their antecedent, a negative presupposition, and therefore, we might suppose, have some affinity with *because* clauses. Goodman noticed the semantic equivalence of contrary-to-fact conditions and *because* clauses with the positive-negative polarity reversed.

(26) If you had gone to Athens you would have seen Socrates

(27) Because you didn't go to Athens you didn't see Socrates

(28) If you were in Athens you would be seeing Socrates

(29) Because you are not in Athens you are not seeing Socrates

(Goodman transposed the two clauses, but that need not concern us here). An adequate linguistic theory should be able to characterise the mutual

deducibility of these clause types. The presuppositional values of *because* clauses and real and hypothetical conditions, as I have outlined them, are a necessary prerequisite to such a theory. In (28) one presupposes the falsity of your going to Athens and in (29) one asserts it. (The *if* of the counterfactual must be equivalent to *if and only if*).

Another important set of facts on which our presuppositional analysis bears concerns the analysis of purpose clauses. Robin Lakoff noticed the equivalence of (30). *He went to Rome in order to see Nero* and (31) *He went to Rome because he wanted to see Nero*, and she proposed that purpose clauses be derived from a structure like that in Figure 28. (I update the style of her trees, and abolish the VP node which Lakoff, in 1967, was still working with).

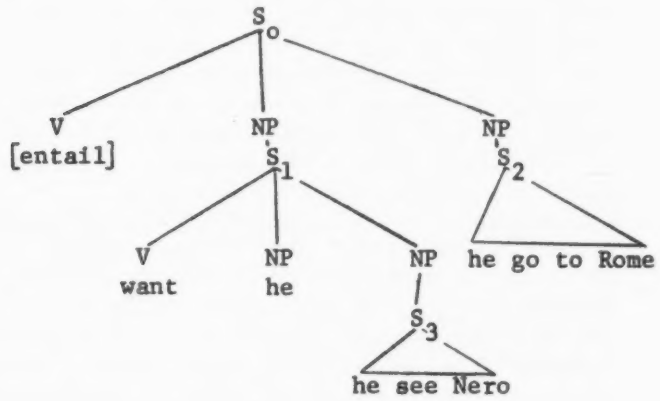


FIGURE 2

However, this equivalence of purpose clauses and *because* clauses containing a verb of wanting does not always work out. (32) *You must work hard in order to make money* and (33) *You will have to be a Neanderthal in order to please Agnew* are equivalent respectively to (32a). *You must work hard if you want to make money* and (33a) *You will have to be a Neanderthal if you want to please Agnew*. That is, they are equivalent to conditions and not to *because* clauses. I am grateful to Robin Lakoff for pointing out to me these apparent counterexamples to her analysis. But, I claim that these are precisely the cases where it is not presupposed that the subject complement of *entail* (now containing a verb of wanting)

is true. Therefore, by our general axiom, they could be realised only by an open condition clause and not by a *because* clause, which must necessarily presuppose the truth of the proposition. The possibility of a unified treatment for these purpose clauses constitutes more nice evidence for my theory.

I have claimed, then, that the entailment relationship may be realised as an *if* clause or a *because* clause, depending on the presupposed truth value of the antecedent, or as a purpose clause if the antecedent contains a verb of wanting as its highest verb. Bearing in mind this interaction of entailment with an existential presupposition, let us now look at some differences in the use of two universal quantifiers, the so-called indefinite *any* and the definite *all*.

I claim that *any* is to be characterised as involving no existential presupposition. Thus somebody who believed that there are such things as Zoroastrians might say (34) *Every Zoroastrian is out of his mind.* Somebody who knows there are no such things might say (35) *Any Zoroastrian would be out of his mind.* Notice the need for the modal *would* with *any*; nobody would be so schizophrenic as to say (36) **Any Zoroastrian is out of his mind.* This claim accounts for the curious distribution in *if* and *because* clauses. *Any* does not occur freely in *because* clauses and hypothetical conditions; remember that we analysed both these clause types as derived from an underlying structure with an abstract verb *entail* and both as being subject to an existential presupposition on the subject complement, a positive presupposition in the case of *because* clauses and a negative one in the case of hypothetical conditions.

Any occurs in a simple declarative, indicative sentence only if there is a possible generic interpretation. Thus (37) *Any linguist throws darts at Skinner whenever he gets the chance* but (38). *?? Any linguist hit Skinner with a dart.* (39) *All red-blooded Americans were in Washington on April 24th.* Exactly the same restrictions apply for the conditions of occurrence in a *because* clause. But in a hypothetical condition some very curious things happen.

I reported above Goodman's observation of the equivalence of a counterfactual condition and a negative reason clause, the equivalence of (26) and (27). However, there is a very interesting case where this relationship breaks down. I have asserted that *because* clauses and counterfactual conditions both involve existential presuppositions on the subject of entail and I have asserted that the use of *any* generally involves absence of an existential presupposition. Thus *any* does not occur freely in a *because* clause, unlike in an *if* clause, of course, where occurrence is quite free. Now I note that sentences of the form of counterfactual conditions also contain *any* or an indefinite NP freely, *but that then they lose their counterfactual force*, i.e. in my terms, they lose their negative existential presupposition. Thus (41) is not equivalent to (42); it is not counterfactual.

(41) If {anyone / a man} had gone to Athens in 400 B.C., they (?he) would have met Socrates

(42) Because nobody went to Athens in 400 B.C., they didn't meet Socrates

(43) If anyone had drunk hemlock, they would have died

(44) Because nobody drank hemlock, they didn't die

These facts, I think, are clear and lend striking support to my analysis, but there is a very curious thing. Notice that in (41) and (43) the subject of the *if* clause and that of the main clause are coreferential. If I take an *any* subject in the *if* clause and a non-coreferential subject of the main clause, then counterfactuality is preserved. Thus these pairs are equivalent:

(45)a If anybody had told me that babies eat cats I wouldn't have left the cat in the playpen

b Because nobody told me that babies eat cats I left the cat in the playpen

(46)a If anybody had tried to lift 1,000 lbs., I would have been amazed
b Because nobody tried to lift 1,000 lbs., I was not amazed

So there seems to be a constraint such that a contrary-to-fact condition containing an indefinite will lose its counterfactual force if the deep structure subjects are coreferential. Hence by virtue of this constraint (47) *If any linguist of the nineteenth century had known Verner's Law, he would also have known Grimm's Law* does not presuppose that no linguist knew Verner's Law. I find this thoroughly mysterious. But I cannot just cast this fact into the garbage can because in fact precisely the same constraint seems to operate for *because* clauses, so that one cannot refer back to an *any* in a *because* clause, i.e. the two subjects cannot be coreferential.

(48) *Because any linguist knows Verner's Law they/?he must also know Grimm's Law

(49) *Because anybody buys books they/?he don't like donuts

However, it seems that one can refer back to an indefinite NP in a *because* clause provided that the *because* is equivalent to *just because*. Remember that I asserted earlier that Goodman's transposition worked only if the *if* was equivalent to *if and only if*. Hence

(50) Because $\left\{\begin{matrix}\text{anybody}\\ \text{a man}\end{matrix}\right\}$ had read one book, he isn't a scholar

where *because* is equivalent to *just because*. Similarly sentences of the form (51) *Just because a man buys books doesn't mean that he likes donuts*. Incidentally sentences of this form give further evidence for our analysis of *because* clauses as derived from the subject complement of a verb *entail* . *Because* here works as a complementiser to the subject of the verb *mean*; this complementiser use of *because* can arise only if the verb means *entail*, *mean*, *lead to*, etc. The coreference constraint also seems to apply to *because* sentences containing *some*: (52) *Because somebody shot him$_i$ John$_i$ is in the hospital*, but (53) **Because somebody$_i$ shot Mary he$_i$ was arrested*.

(54) *Everyone who is a Republocrat has blue eyes* makes no sense if there are no such things as Republocrats, unlike (55) *Anybody who is a Republocrat has blue eyes*, which asserts that if somebody is a Republocrat he will have blue eyes; if he does not have blue eyes he is not a Republocrat, although it is quite possible that there are no Republocrats and also possible, although not in this world, that nobody has blue eyes. (56) *Any linguist will say that language is bodily function* is not invalidated if nobody ever gives that information, simply because one doesn't ask any. Such things are not necessarily redundant. On the basis of *any Martian will be green* one might conclude that if Martians were to exist they would be green. Similarly on the basis of Vendler's (57) *Any perpetual motion machine would violate the laws of thermo-dynamics, which would be impossible* one may rebut the would-be inventor by saying (58) *If your thing were a perpetual motion machine it would violate the laws of thermo-dynamics, which is impossible,* where one argues from the impossibility of the consequent to that of the antecedent. A proposition containing *any*, then, is parallel to a sentence with an *if* clause, in that the significance of the sentence does not consist in the actual realisation of the antecedent or of the consequent, but rather in the relationship of these two. It asserts that any fulfilment of the antecedent will entail fulfilment of the consequent. Thus an *any* proposition, in Vendler's words, is an "open, hypothetical, a lawlike assertion".

In drawing a distinction between the use of *any* as opposed to *every* and *all*. I have shown some similarities between the use of *any* and that of *if* clauses, in that they may be used to express the same kinds of ideas, lawlike statements, and are characteristically used in the same kinds of situations, with no existential presupposition. The use of *any* can always be transformed into a corresponding conditional and *any* usually cannot be used in a simple sentence with an indicative verb, rather only where the modal nature of the sentence allows a transposition into some kind of condition.

(59) Any Martian is green
Any Martian would be green
A Martian, if such things exist,
would be green

The use of *any* and conditionals are inextricably related. Both *any* and lawlike conditions require an underlying structure which will contain a universal quantifier and a definition which is not subject to an existential presupposition, i.e. (60) $\forall_x$ (x *is something* $\supset$ x...). With the framework I have outlined I have at least a fighting chance of capturing this, as in Figure 3.

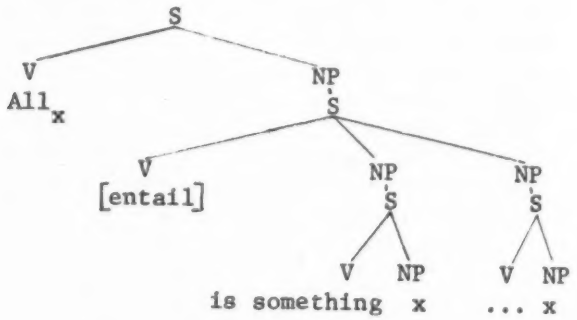


FIGURE 3

Such a structure, with such a universal quantifier, will give rise to an *if* clause or a clause containing *any*, but never to a *because* clause.

(61) If ever one puts a stick in water it appears bent

(62) *Because ever one puts a stick in water it appears bent

(63) Putting a stick in water always causes it to appear bent

By postulating an underlying structure of this degree of abstraction I am able to capture various properties shared by *because* clauses and hypothetical conditions, and similarities shared by these and open conditions. Then with the analysis of *any* as excluding an existential presupposition I account naturally for the distribution of *any* in these clause types. Any, which requires no presupposed actuality, will naturally (given our presuppositional distinction between *because* and *if*) be able to occur readily in an *if* clause, which has the same presuppositional

status, but not in a *because* clause or a condition with counterfactual force.

I claim, then, that we have a series of generalisations here, systematic similarities in the behaviour of *any* and *if* clauses, similarities between *if* and *because* clauses and between *because* clauses and hypothetical conditions (e.g. the coreferential phenomena). These similarities are not shared by other subordinate clause types. It is points for any theory that can capture the generalisations and state the relationship between *if* clauses and *because* clauses. It also constitutes a healthy challenge to any theory which regards *if* and *because* clauses as being as distinct and unrelated as, say, an *if* clause and a temporal clause. I have in mind the interpretivist theory currently advocated by Jackendoff, Dougherty and Chomsky.

NOTES

[1]This paper was delivered at the Canadian Linguistic Association at St. John's, Newfoundland, May 26, 1971.

[2]In *Linguistics in Philosophy*, Cornell 1967.

[3]*Mathematical Logic* pp. 70-71.

[4]I use the term "natural logician" in the sense of Lakoff in his *Linguistics and Natural Logic*, University of Michigan Press 1970. Piaget uses the term in almost exactly the same sense in his *Epistémolgie Mathématique et Psychologique, Essai sur les Relations entre la logique formelle et la pensée réelle*, Presses Universitiares de France, 1961.

[5]MIT Press, 1968.

[6]In this connexion see Robin Lakoff's squib *Another Non-source for Comparatives* in Linguistic Inquiry Vol. I Number 1, and Rodney Huddlestone's squib in Vol. II, Number 2.

[7]Cambridge, 1955.

[8]In fact the equivalence breaks down at some points. For example, *Marcus went to Rome in order to comply with the demand of the ruthless dictator* is presumably not equivalent to *Marcus went to Rome because he wanted to comply with the demand of the ruthless dictator.* Here an abstract verb *need* would be more appropriate. However, if one needs to posit a variety of abstract verbs to capture the supposed relationship, then the theory of abstract verbs is weakened and perhaps completely discredited. The point of positing an abstract verb is to capture a syntactic generalisation; if a number of abstract verbs are needed to capture the generalisation, probably this would indicate that there is no generalisation here to be captured.

David Lightfoot,
Department of Linguistics,
McGill University,
Montreal, P.Q.

September 1971.
Cahiers linguistiques d'Ottawa

N.B.

1. Nous saluons avec plaisir la naissance des Cahiers de linguistique publiés par le Département de linguistique de l'Université du Québec à Montréal. Nous souhaitons longue vie à cette nouvelle publication.

2. The Research Committee on Sociolinguistics of the International Sociological Association announces the quarterly publication of its Sociolinguistics Newsletter. For information, write

Evangelos A. Afendras,
Secretary-Treasurer, RCS/ISA,
Social Science Research Institute,
1914 University Avenue, #101,
University of Hawaii,
Honolulu, Hawaii 96822,
U.S.A.